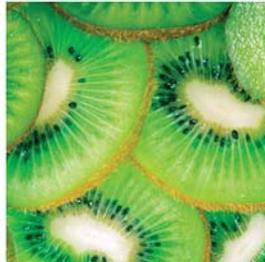


# SERVING IT SAFE

# SEMINAR

## TRAINER'S GUIDE

THIRD EDITION



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**National Food Service Management Institute  
The University of Mississippi**

*Building the Future Through Child Nutrition*

The National Food Service Management Institute was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford. The Institute operates under a grant agreement with the U.S. Department of Agriculture, Food, and Nutrition Service.

**PURPOSE**

The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

**MISSION**

The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

**VISION**

The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

**CONTACT INFORMATION**

**Headquarters  
Administration Division**  
The University of Mississippi  
Phone: 800-321-3054  
Fax: 800-321-3061  
[www.nfsmi.org](http://www.nfsmi.org)

**Education and Training Division  
Information Services Division**  
The University of Mississippi  
6 Jeanette Phillips Drive  
P.O. Drawer 188  
University, MS 38677-0188

**Applied Research Division**  
The University of Southern Mississippi  
118 College Drive #10077  
Hattiesburg, MS 39406-0001  
Phone: 601-266-5773  
Fax: 888-262-9631

## **Acknowledgements**

### **WRITTEN AND DEVELOPED BY**

Jeannie Sneed, PhD, RD, SNS, CPFS

### **GRAPHIC DESIGN BY**

Vicki Howe

National Food Service Management Institute

### **PROJECT COORDINATOR**

Theresa Stretch, MS, RD, CPFS

National Food Service Management Institute

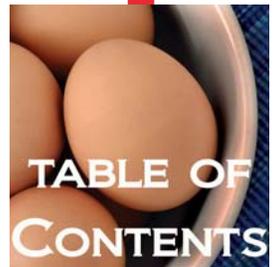
### **EXECUTIVE DIRECTOR**

Charlotte B. Oakley, PhD, RD, FADA

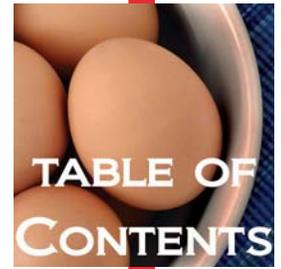
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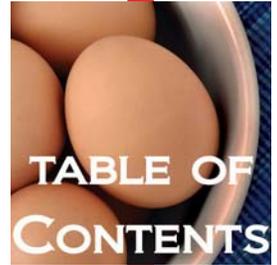
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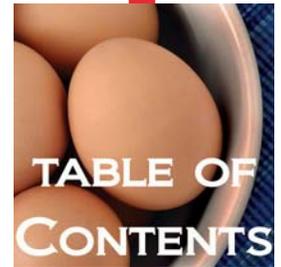
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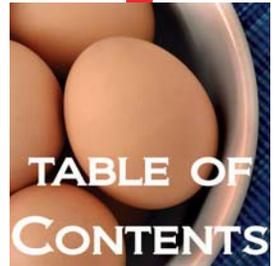
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## INTRODUCTION

*Serving It Safe* has been used for conducting employee training since the first edition, *Serving It Safe: A Manager's Tool Kit*, was published in September 1996. A second edition was published in 2002, and reprinted in 2004 to reflect changes in the *Food Code*. The third, and current, edition was revised and published in 2009. This document was reviewed by the U.S. Department of Agriculture, Food and Drug Administration, and the National Food Service Management Institute.

This *Serving It Safe Seminar Trainer's Guide* has been developed to assist trainers in providing a face-to-face food safety seminar based on *Serving It Safe*. This seminar may be presented in two consecutive days, or over a period of time in shorter lessons. School nutrition directors and trainers may also select specific topics to use as orientation or refresher training for foodservice employees.

There is an overview, pre- and post-lesson assessments, and six lessons. Each lesson includes the following components.

- Preparation Checklist
- Lesson Introduction and Learning Objectives
- Lesson-at-a-Glance, including estimated time required for each portion of the lesson
- Lesson Plan with learning activities
- Fact Sheets and other handouts used in the lesson
- Pre- and Post-Lesson Assessment\*
- Answers to the Pre- and Post-Lesson Assessment\*
- Resources and References

**\*Note:** The Pre- and Post-Lesson Assessments are used only if the *Serving It Safe Seminar* lessons are taught individually. If all of the lessons are taught as a single workshop, use the Pre- and Post-Seminar Assessment.





## **PREPARING FOR THE *SERVING IT SAFE SEMINAR***

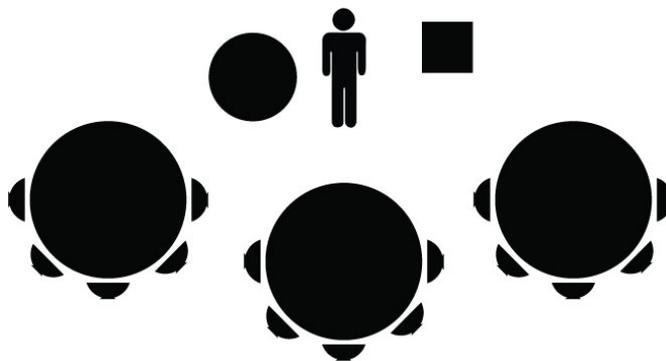
Before beginning to teach the *Serving It Safe Seminar*, prepare the learning environment and review the Preparation Checklist at the beginning of each lesson for items that will be needed. Follow the Lesson-at-a-Glance for approximate timing.

The *Serving It Safe Seminar Participant's Workbook* should be provided for each participant. The document is available on the NFSMI Web site, [www.nfsmi.org](http://www.nfsmi.org). Make a copy for each participant.

Throughout this seminar, flip chart paper and markers will be used extensively. Be sure to check that the markers do not leak through onto the surface beneath the paper.

### **Tips for Training Success**

- Select a room with tables and chairs appropriate for adults. Tables must be large enough for activities that involve group work and completing forms. Arrange seating for no more than five participants at a table. This allows participants to work in teams on lesson activities while still allowing space for handouts. A suggested seating arrangement is shown below.



- Maintain a comfortable and non-threatening class environment.
- Begin and end each lesson on time.



## Seminar Checklist

Done



### Prepare for the lessons.

- Carefully read each lesson's Preparation Checklist and lesson content.
- Review learning activities.
- Make a list of materials needed for activities. Be sure to note quantities to supply sufficient materials for all participants.

### Gather materials.

- Place cards (one for each participant)
- Serving It Safe Seminar Participant's Workbook* (one copy for each participant; see [www.nfsmi.org](http://www.nfsmi.org) for downloadable PDF)
- NFSMI Food Safety Standard Operating Procedures* (one copy for each participant; see [www.nfsmi.org](http://www.nfsmi.org) for downloadable PDF)
- Materials for lesson activities (sufficient quantities for all participants)
- Pre-Seminar Assessment\* (one copy for each participant)
- Pens (one for each participant)
- Pencils (one for each participant)
- Flip chart paper
- Markers for flip chart

**\*Note:** If the *Serving It Safe Seminar* lessons are taught individually, use the Pre- and Post-Lesson Assessments included with the lessons instead of the Pre- and Post-Seminar Assessment.

# OVERVIEW

## *SERVING IT SAFE SEMINAR*



**Seminar Welcome, Overview, and Pre-Seminar Assessment**

**45 minutes**

**Lesson 1: Food Safety Is Top Priority**

**1 hour**

Following the lesson, participants will be able to

1. describe why food safety is a top priority in school nutrition programs;
2. define foodborne illness and foodborne outbreak;
3. give examples of biological, chemical, and physical hazards;
4. give examples of how to prevent biological, chemical, and physical hazards; and
5. state the temperatures in the temperature danger zone.

**Lesson 2: Prevent Foodborne Illness—  
Understanding Microorganisms**

**2 hours**

Following the lesson, participants will be able to

1. describe ways in which harmful bacteria can contaminate food,
2. list good personal hygiene practices that should be followed by foodservice employees,
3. demonstrate proper hand washing procedures to minimize hand-to-food cross-contamination,
4. list times when foodservice employees should wash their hands,
5. describe proper glove use,
6. demonstrate use of a food thermometer,
7. demonstrate how to calibrate a thermometer using the ice-point method,
8. describe ways to minimize food-to-food cross-contamination,
9. describe ways to minimize equipment-to-food cross-contamination,
10. list responsibilities of foodservice managers in preventing foodborne illness,

11. list responsibilities of foodservice employees in preventing foodborne illness, and
12. identify guidelines for responding to a reported foodborne illness.

### **Lesson 3: Basic Facts About Microorganisms**

**1 hour, 30 minutes**

Following the lesson, participants will be able to

1. list common causes of foodborne illness,
2. list common foodborne illnesses,
3. describe factors that support growth of bacteria, and
4. describe ways that foodservice employees can prevent foodborne illness.

### **Lesson 4: A Clean and Sanitary Foodservice Facility**

**1 hour, 30 minutes**

Following the lesson, participants will be able to

1. list characteristics of a food-safe facility;
2. describe practices that can be used to control pests in a foodservice operation;
3. demonstrate how to mix and test chemical sanitizing solutions;
4. demonstrate how to clean and sanitize;
5. describe how to set up and use a three-compartment sink;
6. demonstrate how to use mechanical dishwashers, including checking temperatures or sanitizing solution concentration; and
7. demonstrate how to clean and sanitize large equipment.

### **Lesson 5: A Process for Preventing Foodborne Illness**

**2 hours, 35 minutes  
(includes  
10 minutes  
optional time)**

Following the lesson, participants will be able to

1. describe how purchasing relates to food safety;
2. list food safety practices that should be followed when receiving food;
3. describe safe food handling practices for dry, refrigerated, and frozen storage;
4. list good food handling practices when preparing food;
5. describe safe methods for thawing frozen food;
6. list food safety guidelines for cooking food;
7. state end-point cooking temperatures for foods often prepared in schools;
8. state appropriate holding temperatures for hot and cold food;

9. describe food safety guidelines for serving food;
10. list steps for the safe cooling of food; and
11. describe the reheating process for food.

**Optional** (depending on need of participants)

12. Describe the steps for ensuring food safety when transporting food.

## **Lesson 6: Food Safety Programs in Schools**

**1 hour, 20 minutes**

Following the lesson, participants will be able to

1. list components of a food safety program;
2. describe the Process Approach; and
3. identify menu items that fit into the three process categories: No Cook, Same Day Service, and Complex Food Preparation.

## **Wrap Up and Post-Seminar Assessment**

**25 minutes**

# SUGGESTED AGENDA

## *SERVING IT SAFE SEMINAR*



### DAY 1

<b>8:00-8:45</b>	<b>Seminar Welcome and Overview</b>	
	Welcome	5 minutes
	Opening activity	15 minutes
	Seminar schedule and overview	5 minutes
	Pre- and Post-Seminar Assessment	20 minutes
<b>8:45-9:45</b>	<b>Lesson 1: Food Safety Is Top Priority</b>	
	Introduction and overview*	5 minutes
	Describe why food safety is a top priority in school nutrition programs.	10 minutes
	Define foodborne illness and foodborne outbreak.	5 minutes
	Give examples of biological, chemical, and physical hazards.	10 minutes
	Give examples of how to prevent biological, chemical, and physical hazards.	20 minutes
	State the temperatures in the temperature danger zone.	5 minutes
	Wrap up*	5 minutes
	<b>*Note:</b> If this <i>Serving It Safe Seminar</i> lesson is taught individually, ask participants to take the Pre- and Post-Lesson Assessment included with the lesson instead of the Pre- and Post-Seminar Assessment. Allow 5 additional minutes.	
<b>9:45-10:00</b>	<b>Break</b>	

**10:00-12:00 Lesson 2: Prevent Foodborne Illness—  
Understanding Microorganisms**

Introduction and overview*	5 minutes
Describe ways in which harmful bacteria can contaminate food.	10 minutes
List good personal hygiene practices that should be followed by foodservice employees.	15 minutes
Demonstrate proper hand washing procedures to minimize hand-to-food cross-contamination.	10 minutes
List times when foodservice employees should wash their hands.	5 minutes
Describe proper glove use.	5 minutes
Demonstrate use of a food thermometer.	20 minutes
Demonstrate how to calibrate a thermometer using the ice-point method.	15 minutes
Describe ways to minimize food-to-food cross-contamination.	5 minutes
Describe ways to minimize equipment-to-food cross-contamination.	5 minutes
List responsibilities of managers in preventing foodborne illness.	5 minutes
List responsibilities of employees in preventing foodborne illness.	5 minutes
Identify guidelines for responding to a reported foodborne illness.	10 minutes
Wrap up*	5 minutes

**\*Note:** If this *Serving It Safe Seminar* lesson is taught individually, ask participants to take the Pre- and Post-Lesson Assessment included with the lesson instead of the Pre- and Post-Seminar Assessment. Allow 5 additional minutes.

**12:00-1:00 Lunch**

**1:00-2:30 Lesson 3: Basic Facts About Microorganisms**

Introduction and overview*	5 minutes
List common causes of foodborne illness.	5 minutes
List three common foodborne illnesses.	30 minutes
Describe factors that support growth of bacteria.	30 minutes
Describe ways that foodservice employees can prevent foodborne illness.	15 minutes
Wrap up*	5 minutes

**\*Note:** If this *Serving It Safe Seminar* lesson is taught individually, ask participants to take the Pre- and Post-Lesson Assessment included with the lesson instead of the Pre- and Post-Seminar Assessment. Allow 5 additional minutes.

**2:30-2:45**

**Break**

**2:45-4:15**

**Lesson 4: A Clean and Sanitary Foodservice Facility**

Introduction and overview*	5 minutes
List characteristics of a food-safe facility.	15 minutes
Describe practices that can be used to control pests in a foodservice operation.	15 minutes
Demonstrate how to mix and test chemical sanitizing solutions.	10 minutes
Demonstrate how to clean and sanitize.	5 minutes
Describe how to set up and use a three-compartment sink.	10 minutes
Demonstrate how to use mechanical dishwashers, including checking temperatures or sanitizing solution concentration.	15 minutes
Demonstrate how to clean and sanitize large equipment.	10 minutes
Wrap up*	5 minutes

**\*Note:** If this *Serving It Safe Seminar* lesson is taught individually, ask participants to take the Pre- and Post-Lesson Assessment included with the lesson instead of the Pre- and Post-Seminar Assessment. Allow 5 additional minutes.

## **DAY 2**

### **8:00-10:00 Lesson 5: A Process for Preventing Foodborne Illness**

Introduction and overview*	5 minutes
Describe how purchasing relates to food safety.	15 minutes
List food safety practices that should be followed when receiving food.	15 minutes
Describe safe food handling practices for dry, refrigerated, and frozen storage.	15 minutes
List good food handling practices when preparing food.	15 minutes
Describe safe methods for thawing frozen food.	10 minutes
List food safety guidelines for cooking food.	10 minutes
State end-point cooking temperatures for foods often prepared in schools.	5 minutes
State appropriate holding temperatures for hot and cold food.	15 minutes
Describe food safety guidelines for serving food.	15 minutes

### **10:00-10:15 Break**

### **10:15-10:50 Lesson 5 Continued**

List steps for safe cooling of food.	15 minutes
Describe the reheating process for food.	5 minutes
Describe steps for ensuring food safety when	10 minutes

transporting food (optional). (optional)

Wrap up\* 5 minutes

**\*Note to trainer:** If this *Serving It Safe Seminar* lesson is taught individually, ask participants to take the Pre- and Post-Lesson Assessment included with the lesson instead of the Pre- and Post-Seminar Assessment. Allow 5 additional minutes.

**10:50-12:10 Lesson 6: Food Safety Programs in Schools**

Introduction and overview\* 5 minutes

List the components of a food safety program. 10 minutes

Describe the Process Approach. 40 minutes

Identify menu items that fit into the three process categories: No Cook, Same Day Service, and Complex Food Preparation. 20 minutes

Wrap up\* 5 minutes

**\*Note to trainer:** If this *Serving It Safe Seminar* lesson is taught individually, ask participants to take the Pre- and Post-Lesson Assessment included with the lesson instead of the Pre- and Post-Seminar Assessment. Allow 5 additional minutes.

**12:10-12:35 Wrap Up and Post-Seminar Assessment**

Wrap-up activity 10 minutes

Pre- and Post-Seminar Assessment 10 minutes

Distribute certificates 5 minutes

## SEMINAR OVERVIEW

### Overview At-A-Glance

Time	Topic	Task	Materials
	<b>Lesson Preparation</b>	Set up classroom for overview.	See preparation checklist.
5 minutes	<b>Welcome</b>	Welcome participants to the seminar.	
	Introduction of presenters	Introduce trainer(s), special guests, and audience.	
15 minutes	<b>Opening Activity</b>	Guide participants to complete the Opening Activity.	
5 minutes	<b>Seminar Schedule and Overview</b>	Review seminar schedule and provide an overview of the seminar. Provide logistical information about the seminar facility.	
20 minutes	<b>Pre- and Post-Seminar Assessment</b>	Administer the Pre- and Post-Seminar Assessment.	Pre- and Post-Seminar Assessment on pages 15-18 or in the <i>Serving It Safe Participant's Workbook</i>



## Welcome

**SAY:** Welcome and thank you for taking part in the *Serving It Safe Seminar*. At the end of this seminar, we will have discussed food safety, why it is important, how we can have a food-safe facility, and how we can prevent foodborne illness in the future.

**DO:** Introduce other trainers and special guests.

**SAY:** Let's take a few minutes to get to know each other.

**DO:** Complete the Opening Activity.



## Opening Activity

### Materials needed:

- Place cards (one per participant)
- Pens (one per participant)

1. Distribute a place card to each participant.
2. Ask each participant to write their name on the front of the place card.
3. Ask each participant to write three truths about themselves and one untruth on the back of the place card. (Give them an example for yourself. For example, write: lived in eight states; have a schnauzer; ride horses; and live on a farm. Three statements are true, one is false—I don't ride horses.)
4. Ask participants to sit beside someone they don't know. Each person should present their four statements and the other person should guess which statement is false.
5. Give them 5 minutes to complete the activity and then let them introduce the other person to the group telling three things about the person.

## Seminar Schedule and Overview

- Do:** Review seminar schedule and provide an overview of the seminar.
- Do:** Provide logistical information about the seminar facility, such as the location of restrooms, if the participants are unfamiliar with the building.
- SAY:** Before we get started with Lesson 1, let's take a few minutes to find out what you already know about food safety, foodborne illness, and preventing foodborne illness. Please complete the Pre-Seminar Assessment.
- Do:** Administer the Pre- and Post-Seminar Assessment. The assessment is located on pages 15-18 of this guide or in the *Serving It Safe Participant's Workbook*.



## Pre- and Post-Seminar Assessment

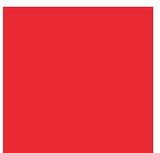
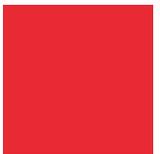
1. Which of the following statements is **true** about food safety?
  - a. Foodservice employees have no control over the safety of food served.
  - b. Children are young and healthy, so they are not likely to get foodborne illnesses.
  - c. A food safety program must be maintained in all school buildings.
  - d. It is difficult to follow good food handling techniques.
  
2. A foodborne illness outbreak is said to occur when
  - a. one or more people become ill after eating in the same foodservice operation,
  - b. two or more people become ill after eating the same food,
  - c. five or more people become ill after eating the same food, or
  - d. at least 10 people become ill after eating the same food.
  
3. What is one important method for preventing biological hazards?
  - a. Clean and sanitize food contact surfaces.
  - b. Store chemicals in a separate storage area.
  - c. Wear disposable plastic gloves over bandages on hands.
  - d. Remove all nail polish before working with food.
  
4. What is one important method for preventing chemical hazards?
  - a. Avoid wearing jewelry that could fall into food.
  - b. Control time that food is in the temperature danger zone.
  - c. Test sanitizing solutions to make sure they are at correct concentrations.
  - d. Wash hands after coughing or sneezing.
  
5. Which of the following temperature ranges represents the temperature danger zone?
  - a. 35 °F-140 °F
  - b. 50 °F-70 °F
  - c. 41 °F-135 °F
  - d. 50 °F-140 °F



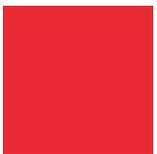
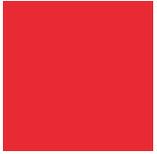
6. Which of the following practices has been identified as a main cause of foodborne illnesses?
  - a. Purchasing food from approved sources
  - b. Using written standard operating procedures
  - c. Abusing the time-temperature relationship
  - d. Checking temperatures of food during cooking
  
7. Cross-contamination can occur when
  - a. ready-to-eat meats are stored on the top shelf in the refrigerator,
  - b. hands are washed between tasks,
  - c. color-coded cutting boards are used, or
  - d. a new can of peaches is added to leftover peaches and put on the salad bar.
  
8. How long should employees wash their hands?
  - a. 10 seconds
  - b. 20 seconds
  - c. 30 seconds
  - d. 40 seconds
  
9. Which of the following statements is **true** about taking food temperatures?
  - a. A bimetallic stemmed thermometer may be used for taking temperatures of hamburger patties.
  - b. Infrared thermometers can be used for taking cooking temperatures.
  - c. Thermometers rarely need to be calibrated.
  - d. Temperatures should be taken in multiple locations for foods such as casseroles.
  
10. Which of the following statements is **true** about thermometer calibration?
  - a. Thermometers should be calibrated each time they are dropped.
  - b. Thermometers should be calibrated at least monthly.
  - c. Thermometers do not need to be calibrated because they are guaranteed to be accurate.
  - d. Cold water calibration is the only acceptable method.



11. Bacteria that can be harmful is called
  - a. spoilage bacteria,
  - b. pathogen,
  - c. parasite, or
  - d. virus.
  
12. Which of the following actions will kill harmful bacteria?
  - a. Freezing the food for 4 hours
  - b. Heating the food at a low temperature for a long time
  - c. Keeping the food out of the temperature danger zone
  - d. Cooking the food to the required internal temperature for 15 seconds
  
13. What is the most common cause of foodborne illness?
  - a. Bacteria
  - b. Mold
  - c. Virus
  - d. Yeast
  
14. Which bacteria could cause hemolytic uremic syndrome in young children?
  - a. *Campylobacter jejuni*
  - b. *Escherichia coli* O157:H7
  - c. *Listeria monocytogenes*
  - d. *Staphylococcus aureus*
  
15. If you observe mold on food, what recommendation should you follow?
  - a. Cut away the moldy area and use the remainder of the food.
  - b. Discard the food.
  - c. Use the food in something that will be cooked.
  - d. Use the food if the mold spots are small.
  
16. Which of the following practices supports pest infestation and growth in a foodservice operation?
  - a. Removing all cardboard boxes from the facility
  - b. Cleaning grease traps often
  - c. Storing food items on the floor
  - d. Installing air doors at entrances



17. A three-compartment sink should be set up and used properly. Which statement is **true** about using a three-compartment sink?
- a. Set up compartments to wash, rinse, and sanitize.
  - b. Set up compartments to rinse, wash, and sanitize.
  - c. Prepare sanitizing solution daily.
  - d. Use any water temperature for mixing detergent and sanitizer.
18. What type of thermometer can be used to test final rinse temperatures?
- a. Meat thermometer
  - b. Self-adhering temperature sensing label
  - c. T-Stick®
  - d. Bi-metallic stemmed thermometer
19. When using a chemical dish machine, which of the following statements is true?
- a. Chemical solution concentrations are different than used for manual sanitizing.
  - b. Sanitizing solution should be tested at the end of a rinse cycle.
  - c. Testing of sanitizing solution is not necessary because the dish machine is serviced routinely.
  - d. It is not necessary to document chemical sanitizer concentration.
20. Which one of the following provides important information about the safety of using a chemical?
- a. Standard operating procedures
  - b. Training manual in school district
  - c. Material Safety Data Sheet
  - d. Cleaning schedules
21. Which of the following methods of thawing is acceptable?
- a. Place frozen food in the refrigerator on the bottom shelf.
  - b. Place frozen food in room temperature water.
  - c. Place frozen food in the refrigerator on the top shelf.
  - d. Thaw frozen food in hot water, and then cook immediately.



22. What is the recommended cooking temperature for a raw hamburger patty based on the *Food Code*?
- a. 135 °F
  - b. 145 °F
  - c. 155 °F
  - d. 165 °F
23. What are the recommended holding temperatures for cold and hot foods based on the *Food Code*?
- a. 41 °F or below for cold foods, 135 °F or above for hot foods
  - b. 45 °F or below for cold foods, 140 °F or above for hot foods
  - c. 41 °F or below for cold foods, 140 °F or above for hot foods
  - d. 45 °F or below for cold foods, 135 °F or above for hot foods
24. Which of the following statements is **true** about proper cooling of food?
- a. Plastic containers cool more quickly than stainless steel.
  - b. Putting hot food immediately into a freezer is a best practice.
  - c. Divide food into the smallest quantity possible before cooling.
  - d. Using the two-step cooling method, total time is more important than temperature.
25. Which of the following statements is **most true** about reheating leftover foods?
- a. Reheat to 155 °F for 20 seconds.
  - b. Reheat to 165 °F for 20 seconds within 1 hour.
  - c. Reheat to 165 °F for 15 seconds.
  - d. Reheat to 165 °F for 15 seconds within 2 hours.
26. Which statement is **true** about a food safety program based on HACCP principles?
- a. It is a proactive program to prevent foodborne illness.
  - b. It is a reactive program developed to prevent foodborne illness.
  - c. It is based on results of health department inspections.
  - d. It is designed to be the responsibility of the district foodservice director.



**27.** Which approach requires that foodservice operators group menu items according to the number of times they go through the temperature danger zone?

- a. HACCP approach
- b. Process Approach
- c. Food safety approach
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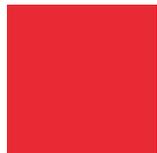
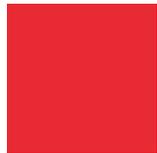
**28.** For no cook items, which step is temperature control considered most important?

- a. Storing
- b. Preparing
- c. Cold holding
- d. Serving



**29.** Menu items that go through the temperature danger zone 2-3 times are called

- a. No Cook items,
- b. Same Day Service items,
- c. Complex Food Preparation items, or
- d. Cooked items.



**30.** Menu items such as pizza and chicken nuggets would be categorized as

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## Pre- and Post-Seminar Assessment Answers

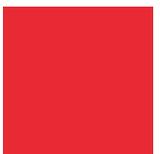
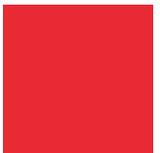
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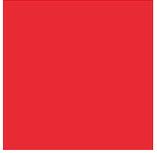
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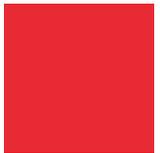
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- c. Cold holding**
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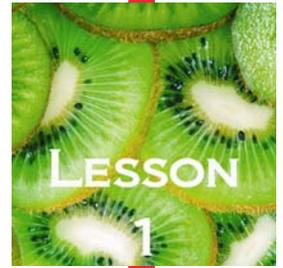
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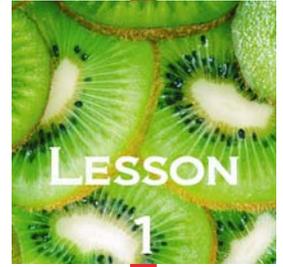
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## **LESSON 1: FOOD SAFETY IS TOP PRIORITY**

<b>Preparation Checklist</b>	<b>28</b>
<b>Lesson Introduction and Learning Objectives</b>	<b>31</b>
<b>Lesson-at-a-Glance</b>	<b>32</b>
<b>Lesson Plan</b>	<b>34</b>
<b>Fact Sheets</b>	
<i>Biological Hazards</i>	<b>47</b>
<i>Chemical Hazards</i>	<b>49</b>
<i>Physical Hazards</i>	<b>51</b>
<i>Temperature Danger Zone</i>	<b>53</b>
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## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for Lesson 1: Food Safety Is Top Priority. Keep track of your progress by checking off tasks as they are completed.

### Lesson 1 Preparation Checklist

Done



Prepare for the lesson.

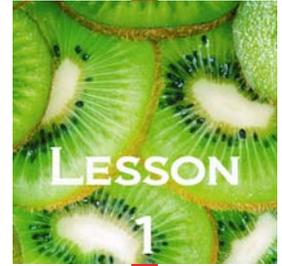
- Carefully read the lesson plan.
- Review learning activities.
- Make copies of the Pre- and Post-Lesson Assessment.\*

**\*Note:** Use only if this *Serving It Safe Seminar* lesson is taught individually. Assessments are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

- Make copies of Lesson 1 Fact Sheets.\*
  - Fact Sheet: *Biological Hazards*
  - Fact Sheet: *Chemical Hazards*
  - Fact Sheet: *Physical Hazards*
  - Fact Sheet: *Temperature Danger Zone*

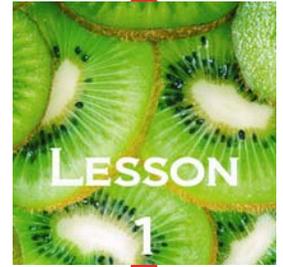
**\*Note:** Fact Sheets are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

- Prepare large paper thermometer with hatch marks at 5 °F intervals.
- Prepare 3" x 5" index cards listing examples of biological, chemical, and physical hazards.



**Gather materials.**

- Pens (one for each participant)
- Activity 2: Identify Hazards**
  - Flip chart paper
  - Painter's tape (one roll for each table)
  - Markers (one for each table, plus one for trainer)
  - Fact Sheets:
    - *Biological Hazards*
    - *Physical Hazards*
    - *Chemical Hazards*
- Activity 3: Identify Practices to Prevent Hazards**
  - Flip chart paper
  - Painter's tape (one roll for each table)
  - Markers (one for each table, plus one for trainer)
  - 3" x 5" index cards, three colors
- Activity 4: Hazard Control in Standard Operating Procedures**
  - Standard Operating Procedures
  - 3" x 4" self-adhesive notes
- Activity 5: Temperature Danger Zone**
  - Paper thermometer with hatch marks at 5 °F intervals
  - Red marker
  - Fact Sheet: *Temperature Danger Zone*



**On seminar day:**

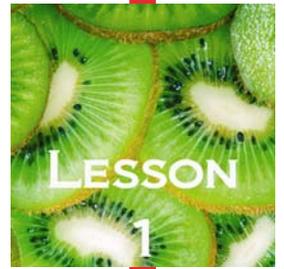
- Tear off six sheets of chart paper for activities.
- Place pens or pencils on tables (one for each participant).
- Place one marker on each table.
- On the instructor's table, place the following:
  - Four fact sheets (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - 3" x 5" index cards listing hazards (use one color for biological, one for physical, and one for chemical)
  - Paper thermometer ready to post
  - Painter's tape
  - 3" x 4" self-adhesive notes
  - Standard Operating Procedures (may be USDA/NFSMI standard operating procedures)
  - Pre-Lesson Assessment (if Lesson 1 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)
  - Post-Lesson Assessment (if Lesson 1 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)

## LESSON INTRODUCTION AND LEARNING OBJECTIVES

Food safety is one of the basic responsibilities of all foodservice employees. This lesson will focus on basic food safety hazards that can occur in a foodservice operation, and how foodservice employees can use good food handling practices to minimize or eliminate a food safety hazard from occurring.

Following the lesson, participants will be able to

1. describe why food safety is a top priority in school nutrition programs;
2. define foodborne illness and foodborne illness outbreak;
3. give examples of biological, chemical, and physical hazards;
4. give examples of how to prevent biological, chemical, and physical hazards; and
5. state the temperatures in the temperature danger zone.

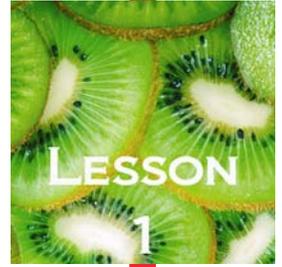


## LESSON AT-A-GLANCE

Time	Topic	Task	Materials
5 minutes	<b>Introduction and Overview</b>	<ol style="list-style-type: none"> <li>1. Introduce instructor and class participants.</li> <li>2. Introduce Lesson 1.</li> <li>3. List lesson objectives.</li> </ol>	
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 55.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
10 minutes	<b>Objective 1</b> Describe why food safety is a top priority in school nutrition programs.	<b>Activity 1:</b> Reasons for Food Safety	
5 minutes	<b>Objective 2</b> Define foodborne illness and foodborne illness outbreak.		
10 minutes	<b>Objective 3</b> Give examples of biological, chemical, and physical hazards.	<b>Activity 2:</b> Identify Hazards	Fact Sheets: <i>Biological Hazards</i> <i>Physical Hazards</i> <i>Chemical Hazards</i>
20 minutes	<b>Objective 4</b> Give examples of how to prevent biological, chemical,	<b>Activity 3:</b> Identify Practices to Prevent Hazards <b>OR</b>	Standard Operating Procedures or example standard operating

	and physical hazards.	<b>Activity 4:</b> Hazard Control in Standard Operating Procedures	procedures
5 minutes	<b>Objective 5</b> State the temperatures in the temperature danger zone.		
5 minutes	<b>Wrap Up</b>	<b>Activity 5:</b> Temperature Danger Zone	Fact Sheet: <i>Temperature Danger Zone</i>
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 55.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.

## LESSON 1: FOOD SAFETY IS TOP PRIORITY LESSON PLAN



### Introduction and Overview

(5 minutes)

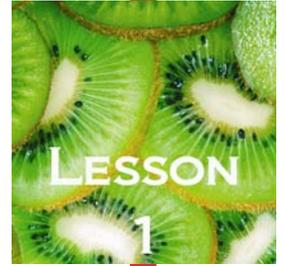
**SAY:** Food safety is an important responsibility of all foodservice employees. The Child Nutrition and WIC Reauthorization Act of 2004 requires that all school food authorities develop and implement a food safety program based on Hazard Analysis Critical Control Points (or HACCP) principles. These programs must be developed and implemented in all schools. It is critical that all foodservice employees have a thorough knowledge of food safety principles so that they can implement a strong food safety program on a daily basis.

**Do:** Refer participants to the lesson objectives in the *Serving It Safe Seminar Participant's Workbook*.

**SAY:** After this lesson, you will be able to

1. describe why food safety is a top priority in school nutrition programs;
2. define foodborne illness and foodborne illness outbreak;
3. give examples of biological, chemical, and physical hazards;
4. give examples of how to prevent biological, chemical, and physical hazards; and
5. state the temperatures in the temperature danger zone.

**Do:** (ONLY if Lesson 1 is presented as an individual training session)  
Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 23 in the *Serving It Safe Seminar Participant's Workbook*. Ask participants to take about 5 minutes to complete the assessment.



**Objective 1: Describe why food safety is a top priority in school nutrition programs. (10 minutes)**

**ASK:** We know that food safety programs are now required by law in school nutrition programs. What are some other reasons why food safety is a top priority in school nutrition programs?

**Do:** Pause to allow for participant's responses.

**Do:** Complete Activity 1: Reasons for Food Safety.

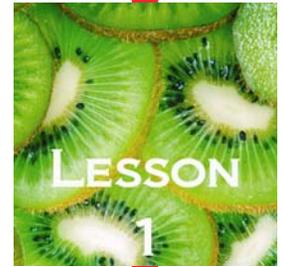


**Activity 1: Reasons for Food Safety**

**Materials needed:**

- Flip chart paper (one sheet to record responses of group)
- Painter's tape (one roll)
- Markers (one set)

1. Ask participants to turn to the person next to them.
2. Give participants 1 minute to come up with two reasons why food safety is a top priority in their school nutrition program.
3. After 1 minute, bring the group back together.
4. Ask one person to be the scribe to list the group's reasons for food safety on a piece of flip chart paper placed at the front of the room. If multiple people come up with the same reason, place a hatch mark next to the item.
5. Discuss briefly.



**Objective 2: Define foodborne illness  
and foodborne  
illness outbreak.**

**(5 minutes)**

**SAY:** (If “to prevent a foodborne illness or foodborne illness outbreak” **was** one of the responses to Activity 1). You identified preventing a foodborne illness or outbreak as one of the reasons that food safety is a top priority in your school nutrition program. That is a very important reason—and it was good that you identified it.

**OR**

(If “to prevent a foodborne illness or foodborne illness outbreak” **was not** one of the responses to Activity 1). Another important reason that food safety is a top priority in a foodservice operation that was not identified is to prevent a foodborne illness or foodborne illness outbreak. No one wants to serve food that has any possibility of causing students to become ill.

**SAY:** Let’s talk just a little about the definitions of foodborne illness and foodborne illness outbreak. A foodborne illness is a disease transmitted to people by food or water. There are many types of foodborne illnesses. Each has symptoms specific to that illness. A foodborne illness must be confirmed with laboratory analysis. In most cases, the source of the illness can be identified.

**ASK:** How many people must have the same symptoms for a foodborne illness outbreak to be suspected and reported?

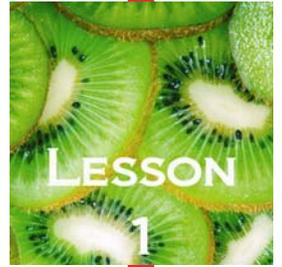
**SAY:** (Transition from responses given to question.) It only takes two people! A foodborne illness outbreak is an incident when two or more people experience the same symptoms after eating a common food. If an outbreak is suspected, it must be reported to the local department of health.

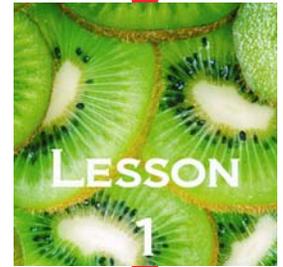
A health inspector will investigate the kitchen where the food

was prepared and will interview individuals who are reported to be ill. Through the investigation, it will be determined whether there was an actual foodborne illness outbreak. If there is enough evidence of an outbreak, investigators will try to determine the source of the foodborne illness.

Through laboratory analyses and genetic fingerprinting, the organism can be identified and it can be determined if the same organism made each person ill. Some of you may remember the outbreak related to spinach that occurred during the fall of 2006. Through genetic fingerprinting, it was established that the same bacteria was ingested by individuals in over 20 states verifying that the source for the illness was the same.

As foodservice professionals, it is our responsibility to use food handling practices that will make food as safe as possible to eat.





**Objective 3: Give examples of biological, chemical, and physical hazards. (10 minutes)**

**SAY:** Let's turn our attention to what we can do to keep food safe. If a foodborne illness occurs because of eating or drinking a contaminated food or beverage, we need to examine what can contaminate these products.

There are three main categories of hazards or contaminants:

- Biological
- Chemical
- Physical

**Do:** Complete Activity 2: Identify Hazards.

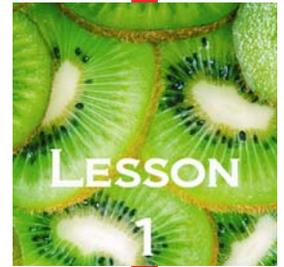


**Activity 2: Identify Hazards**

**Materials needed:**

- Flip chart paper (three sheets to record responses of group)
  - Painter's tape (one roll)
  - Markers (one for each group)
1. Divide participants into three small groups by going around the room and asking participants to say biological, chemical, or physical.
  2. Ask group members to brainstorm ideas and write on chart paper all of the hazards in a kitchen that might fit within their assigned category.
  3. Give the groups about 3 minutes to come up with ideas.
  4. Have each group post their chart papers in three separate areas.

Ask participants to do a “gallery walk” to look at the other two categories of hazards and to add items that might be missing.



## POTENTIAL RESPONSES

### Biological

#### Bacteria

- *Campylobacter jejuni*
- *Clostridium botulinum*
- *Clostridium perfringens*
- *E. coli* O157:H7
- *Salmonella* spp.
- *Shigella* spp.
- *Staphylococcus aureus*

#### Viruses

#### Parasites

#### Fungi

#### Foods that contain

toxins: mushrooms/fish

### Chemical

#### Sanitizers

#### Pesticides

#### Whitening agents

#### Detergents

#### Polishes

#### Glass cleaners

#### Caustics

#### Cleaning and drying agents

### Physical

#### Glass

#### Staples

#### Metal shavings

#### Toothpicks

#### Nail polish

#### Artificial nails

#### Hair

#### Jewelry

#### Bone

#### Stone

#### Equipment parts

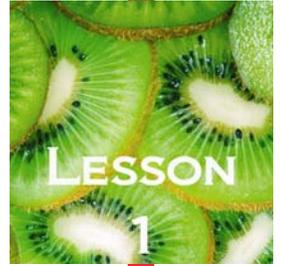
**SAY:** We have identified many potential hazards in each of the three categories of biological, chemical, and physical hazards. Now, we need to talk about ways that we can prevent these hazards from occurring.

**DO:** Distribute a copy of each of the fact sheets to participants.

- Fact Sheet: *Biological Hazards*
- Fact Sheet: *Chemical Hazards*
- Fact Sheet: *Physical Hazards*

**\*Note to trainer:** Fact Sheets are also available in the *Serving It Safe Seminar Participant's Workbook*.

**SAY:** Here are fact sheets about each type of hazard that you can read through. These fact sheets provide some basic information about the hazards, including food handling practices that we can use to control for these hazards.



**Objective 4: Give examples of how to prevent biological, chemical, and physical hazards. (20 minutes)**

**SAY:** We have identified many potential hazards that could occur in our school foodservice operations. It is important to recognize what these hazards may be, but it is equally important to identify ways that we can control these hazards in our operations. Let's explore practices that we can use to control hazards.

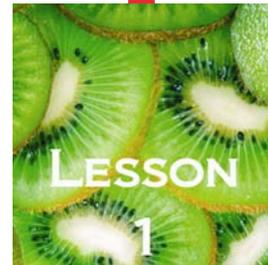
**Do:** Select and complete either Activity 3 **OR** Activity 4, depending on the seminar setting and the needs of participants.



**Activity 3: Identify Practices to Prevent Hazards**

**Materials needed:**

- Flip chart paper (three sheets to record responses of group)
  - Painter's tape (one roll)
  - Markers (one for each group)
  - 3" x 5" index card listing one typical foodservice hazard (use one color card for biological hazards, one color for physical hazards, and one color for chemical hazards)
1. Divide into three groups **OR** prepare an equal number of 3" x 5" index cards with a biological, chemical, or physical hazard written on them and ask the group to divide into three groups based on the type of hazard written on their card. You can use potential responses to Activity 2 for hazards to write on the cards.
  2. Ask each group to brainstorm practices that could be used to control the type of hazard assigned and to record practices on a piece of flip chart paper.
  3. Ask each group to post their chart paper.
  4. Discuss each category of hazards.



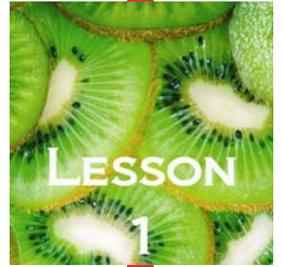
## POTENTIAL RESPONSES

### Biological Hazards

- Purchase food only from approved sources.
- Accept food only if it is at appropriate temperatures.
- Accept food only if the packaging is intact.
- Store food at appropriate temperatures.
- Store raw and cooked foods separately.
- Store food at least 6-8 inches off the floor.
- Follow good personal hygiene practices (hand washing, clean uniforms, and glove use).
- Call in sick if you are suffering from an illness.
- Prepare food according to standard operating procedures.
- Cook food to appropriate temperatures.
- Hold food at appropriate temperatures.
- Serve food at appropriate temperatures.
- Cool food following the *Food Code* guidelines.
- Reheat food to proper temperatures.
- Clean and sanitize properly.
- Control for pests.

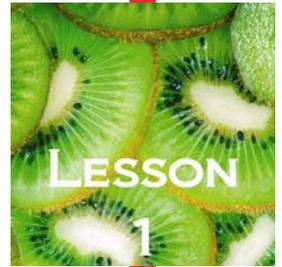
### Chemical Hazards

- Accept food only if the packaging is intact.
- Store chemicals away from food.
- Store chemicals in locked storage cabinet or closet.
- Store chemicals in original containers.
- Label the names of chemicals on approved containers.
- Follow instructions on use of chemicals.
- Clean and sanitize properly.
- Mix sanitizing agents to the appropriate concentration.
- Train employees on how to use chemicals.
- Wash hands after using chemicals.
- Wash fresh produce thoroughly in cold, running water.
- Use a licensed pest control operator.



## Physical Hazards

- Follow personal hygiene standard operating procedures, particularly:
  - Do not use nail polish.
  - Do not use artificial nails.
  - Do not wear jewelry.
  - Do not wear wedding rings with stones.
  - Wear hairnets.
- Use an ice scoop, rather than a glass, for serving ice.
- Use shatterproof light bulbs, or use shields.
- Clean can opener blades after each use.
- Remove staples, nails, and other packaging components from boxes in the receiving area.
- Do not carry a pen or pencil behind your ear.
- Use a licensed pest control operator for routine pest control.



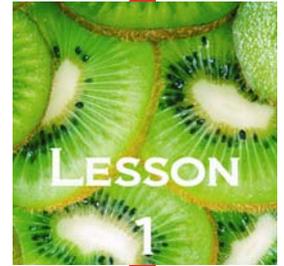
## Activity 4: Hazard Control in Standard Operating Procedures

### Materials needed:

- Standard Operating Procedures (enough copies for two to three participants to share)
  - 3" x 4" self-adhesive note pad
1. Form new groups of three by having one person from each of the three previous groups (biological, chemical, and physical) form a new group.
  2. Provide each group with a copy of the SOP manual\* to review.
  3. Ask participants to go through the SOP manual and identify practices that would control biological, chemical, or physical hazards. As they find one, write it down on a self-adhesive note, and place the note on the SOP page.
  4. Go through the SOP manual, stating the title of the SOP. Ask participants to identify if there are any practices on the SOP that would control a hazard.

**\*Note to trainer:** If all participants come from one foodservice operation, this could be the SOP manual from that foodservice operation. Ask participants to bring a copy of the SOP manual from their foodservice operation. You could also make copies of the USDA/NFSMI SOP and place them in a notebook to simulate an SOP manual.

**SAY:** The standard operating procedures that you use in your foodservice operation are designed to prevent or minimize many potential hazards. That is why it is important to read the SOPs in your operation and follow them on a daily basis.



**Objective 5: State the temperatures in the temperature danger zone. (5 minutes)**

**SAY:** One of the most important ways that we control biological hazards is by controlling time and temperature. The **Temperature Danger Zone** is the temperature range in which bacteria grow rapidly. The temperature danger zone is 41 °F-135 °F.

**ASK:** What is the temperature danger zone in your state or local jurisdiction?\*

**\*Note to trainer:** Discuss the fact that different jurisdictions have different requirements for the temperature danger zone. The *Food Code* uses the 41 °F-135 °F guideline.

**SAY:** Our goal in foodservice is to keep food out of the temperature danger zone as much as possible, and when it is not possible, to limit the time that foods are in that temperature range.

**Do:** Complete Activity 5: Temperature Danger Zone.



**Activity 5: Temperature Danger Zone**

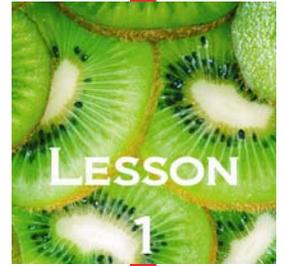
**Materials needed:**

- Large thermometer with hatch marks at 5 °F intervals
- Red marker
- Fact Sheet: *Temperature Danger Zone*

Post a large paper thermometer\* on the board or wall that includes hatch marks at 5 °F intervals. Mark the 41 °F point and the 135 °F point. Color the thermometer red between those two points.

**Ask:** What do we do to keep foods at or below 41 °F?

**Ask:** What do we do to keep foods at or above 135 °F?



**\*Note to trainer:** Keep the thermometer posted for use in subsequent lessons. If lessons are taught on different days, repost the thermometer for all lessons because the temperature danger zone is a key concept. In addition, other important temperatures will be added to the thermometer in subsequent lessons.

## POTENTIAL RESPONSES

### 41 °F or below

- Receive refrigerated foods at or below 41 °F.
- Maintain refrigerator temperatures at or below 41 ° F.
- Maintain milk coolers at or below 41 °F.
- Prepare salads, deli sandwiches, and other foods in batches.
- Serve cold food at or below 41 °F.
- Store cold foods appropriately.
  - Refrigerators
  - Milk coolers
  - Refrigerated serving lines
  - Ice around food
  - Ice packs

### 135 °F or above

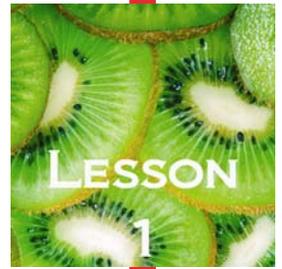
- Cook food to appropriate temperatures.
- Cook food in batches near serving time.
- Hold food in holding cabinets or insulated containers at or above 135 °F.
- Serve food from heated serving lines.

**Do:** Distribute Fact Sheet: *Temperature Danger Zone*

**SAY:** This is a short fact sheet about the temperature danger zone. Read it to help you remember what we have talked about today. Remember, the temperature danger zone is an important concept that you will use every day when you work with food.

## Lesson Wrap Up

(5 minutes)



**SAY:** In this lesson, you have learned some of the basic food safety information that we will build on throughout the *Serving It Safe Seminar*. We discussed the three types of hazards—biological, chemical, and physical—and how those hazards can be prevented in a school nutrition program. We also discussed the temperature danger zone and the need to limit the time that food is in the temperature danger zone.

Now we are ready to build on this basic information. As we progress through this *Serving It Safe Seminar*, we will continue to refer to these basic concepts.

**ASK:** Do you have any questions about anything we have learned in this lesson?

**Do:** Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find the answer and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.

**Do:** (ONLY if Lesson 1 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 23 in the *Serving It Safe Participant's Workbook*. Ask participants to take 5 minutes to complete the assessment.

When participants have completed the assessment, review the answers with the group provided on page 56.

## LESSON 1: FOOD SAFETY IS TOP PRIORITY PRE- AND POST-LESSON ASSESSMENT

1. Which of the following statements is **true** about food safety?
  - a. Foodservice employees have no control over the safety of food served.
  - b. Children are young and healthy, so they are not likely to get foodborne illnesses.
  - c. A food safety program must be maintained in all school buildings.
  - d. It is difficult to follow good food handling techniques.
  
2. A foodborne illness outbreak is said to occur when:
  - a. one or more people become ill after eating in the same foodservice operation,
  - b. two or more people become ill after eating the same food,
  - c. five or more people become ill after eating the same food, or
  - d. at least 10 people become ill after eating the same food.
  
3. What is one important method for preventing biological hazards?
  - a. Clean and sanitize food contact surfaces.
  - b. Store chemicals in a separate storage area.
  - c. Wear disposable plastic gloves over bandages on hands.
  - d. Remove all nail polish before working with food.
  
4. What is one important method for preventing chemical hazards?
  - a. Avoid wearing jewelry that could fall into food.
  - b. Control time that food is in the temperature danger zone.
  - c. Test sanitizing solutions to make sure they are at correct concentrations.
  - d. Wash hands after coughing or sneezing.
  
5. Which of the following temperature ranges represents the temperature danger zone?
  - a. 35 °F-140 °F
  - b. 50 °F-70 °F
  - c. 41 °F-135 °F
  - d. 50 °F-140 °F



## LESSON 1: FOOD SAFETY IS TOP PRIORITY PRE- AND POST-LESSON ASSESSMENT ANSWERS

1. Which of the following statements is **true** about food safety?
  - a. Foodservice employees have no control over the safety of food served.
  - b. Children are young and healthy, so they are not likely to get foodborne illnesses.
  - c. A food safety program must be maintained in all school buildings.
  - d. It is difficult to follow good food handling techniques.
  
2. A foodborne illness outbreak is said to occur when:
  - a. one or more people become ill after eating in the same foodservice operation,
  - b. two or more people become ill after eating the same food,
  - c. five or more people become ill after eating the same food, or
  - d. at least 10 people become ill after eating the same food.
  
3. What is one important method for preventing biological hazards?
  - a. Clean and sanitize food contact surfaces.
  - b. Store chemicals in a separate storage area.
  - c. Wear disposable plastic gloves over bandages on hands.
  - d. Remove all nail polish before working with food.
  
4. What is one important method for preventing chemical hazards?
  - a. Avoid wearing jewelry that could fall into food.
  - b. Control time that food is in the temperature danger zone.
  - c. Test sanitizing solutions to make sure they are at correct concentrations.
  - d. Wash hands after coughing or sneezing.
  
5. Which of the following temperature ranges represents the temperature danger zone?
  - a. 35 °F-140 °F
  - b. 50 °F-70 °F
  - c. 41 °F-135 °F
  - d. 50 °F-140 °F



## RESOURCES AND REFERENCES

### RESOURCES

National Food Service Management Institute. (2009). *Serving it safe* (3rd ed.). University, MS: Author.

National Food Service Management Institute. (2005). *HACCP-based standard operating procedures*. University, MS: Author. Available from National Food Service Management Institute at [www.nfsmi.org](http://www.nfsmi.org)

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National Food Service Management Institute. (2009). *Serving it safe* (3rd ed.). University, MS: Author.

National Restaurant Association Educational Foundation. (2006). *ServSafe*® (4th ed.). Chicago: Author.

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U.S. Department of Health and Human Services, Food and Drug Administration. (2007, March 23). *FDA finalizes report on 2006 spinach outbreak*. Retrieved September 10, 2007, from <http://www.fda.gov/bbs/topics/NEWS/2007/new01593.html>

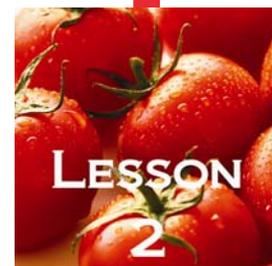


## **LESSON 2: PREVENT FOODBORNE ILLNESS—UNDERSTANDING MICROORGANISMS**

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## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for Lesson 2: Prevent Foodborne Illness—Understanding Microorganisms. Keep track of your progress by checking off tasks as they are completed.

### Lesson 2 Preparation Checklist

Done	Prepare for the lesson.
<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Carefully read the lesson plan.
<input type="checkbox"/>	Review learning activities.
<input type="checkbox"/>	Make copies of the Pre- and Post-Lesson Assessment.* <b>*Note:</b> Use only if this <i>Serving It Safe Seminar</i> lesson is taught individually. Assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
<input type="checkbox"/>	Make copies of Lesson 2 Fact Sheets.* <input type="checkbox"/> Fact Sheet: <i>Personal Hygiene</i> <input type="checkbox"/> Fact Sheet: <i>Hand Washing</i> <input type="checkbox"/> Fact Sheet: <i>Using Food Thermometers</i> <input type="checkbox"/> Fact Sheet: <i>Calibrating Thermometers</i> <b>*Note:</b> Fact Sheets are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
<input type="checkbox"/>	Make copies of Lesson 2 Handouts.* <input type="checkbox"/> USDA/NFSMI Standard Operating Procedure: <i>Personal Hygiene</i> <input type="checkbox"/> <i>Wash Your Hands: Educating the School Community</i> Video Viewing Guide <input type="checkbox"/> USDA/NFSMI Standard Operating Procedure: <i>Washing Hands</i>



- Mini Poster: *Use Disposable Gloves Properly*
- Types of Food Thermometers
- Using Thermometers* Video Viewing Guide
- Calibrating Thermometers* Video Viewing Guide
- Ice-Water Method for Thermometer Calibration
- Thermometer Calibration Log
- Responding to a Foodborne Illness

**\*Note:** Handouts are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

### Gather materials.

- Activity 1: Contamination in the Foodservice Operation**
  - Serving It Safe* Poster
  - Flip chart paper
  - Painter's tape (one roll)
  - Markers (one for trainer)
- Activity 2: Standard Operating Procedures for Personal Hygiene**
  - Personal Hygiene Standard Operating Procedure (SOP) from participants' schools
  - Fact Sheet: *Personal Hygiene*
  - Handout: USDA/NFSMI Standard Operating Procedure: *Personal Hygiene*
- Activity 3: Wash Your Hands: Educating the School Community Video**
  - DVD player and monitor **OR**
  - Computer with Internet connection and monitor
  - Wash Your Hands: Educating the School Community* video
  - Handouts:
    - *Wash Your Hands: Educating the School Community* Video Viewing Guide



- USDA/NFSMI Standard Operating Procedure:  
*Washing Hands*
- Fact Sheet: *Hand Washing*
- Activity 4: Demonstrate Proper Hand Washing (optional)**
  - UV potion
  - UV lamp
  - Access to hand washing sink
- Objective 5: Describe proper glove use.**
  - Mini poster: *Use Disposable Gloves Properly*
- Objective 6: Demonstrate use of a food thermometer.**
  - Fact Sheet: *Using Food Thermometers*
- Activity 5: Types of Food Thermometers**
  - Food Safety Tool Box (could use actual thermometers or pictures)
    - Bimetallic stemmed thermometer
    - Bimetallic stemmed, oven-safe meat thermometer
    - Digital stemmed thermometer (thermistor)
    - Thermocouple
    - Infrared
    - Temperature Sensitive Sticks, such as T-Sticks®
  - Handout: Types of Food Thermometers
- Activity 6: Using Thermometers Video Clip**
  - DVD player and monitor **OR**
  - Computer with Internet connection and monitor
  - Using Thermometers* (segment 4) video clip
  - Fact Sheet: *Using Food Thermometers*
  - Handout: *Using Thermometers* Video Viewing Guide



- Activity 7: Taking Food Temperatures (optional)**
  - Package of frozen food
  - Cooked hamburger patty
  - Turkey roast
  - Digital thermometer
  - Infrared thermometer
  
- Activity 8: *Calibrating Thermometers* Video Clip**
  - DVD player and monitor **OR**
  - Computer with Internet connection and monitor
  - Calibrating Thermometers* (segment 3) video clip
  - Handout: *Calibrating Thermometers* Video Viewing Guide
  - Fact Sheet: *Calibrating Thermometers*
  
- Activity 9: Calibrating a Food Thermometer (optional)**
  - Bimetallic stemmed thermometer (one for each participant, if available)
  - 2-quart liquid measure
  - Crushed ice
  - Cold water
  - Calibration tool or wrench
  - Fact Sheet: *Calibrating Thermometers*
  - Handouts:
    - Ice-Water Method for Thermometer Calibration
    - Thermometer Calibration Log
  
- Activity 10: Use Glowing Powder to Show Cross-Contamination (optional)**
  - Invisible UV powder
  - UV lamp
  
- Activity 11: Demonstrate Proper Handling of Equipment and Utensils**
  - Cutting boards (color coded if available)
  - Glass



- Fork
- Serving spoon
- Other utensils as available
- Flip chart paper
- Painter's tape (one roll)
- Marker (one for trainer)
  
- Activity 12: Identify Food Safety Responsibilities of Managers and Employees**
  - Flip chart paper
  - Painter's tape (one roll)
  - Markers (one for each table)
  
- Activity 13: Responding to a Foodborne Illness**
  - Pens (one for each participant)
  - Handout: Responding to a Foodborne Illness

**On seminar day:**

- Set up room with flip chart paper for activities.
- Place pens or pencils on tables (one for each participant).
- Place one marker on each table.
- Set up the DVD player and monitor **OR** computer and monitor. Test to make sure everything works properly and the monitor is at the appropriate volume level.
- On the instructor's table, place the following:
  - Fact sheets (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Handouts (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Supplies for activities
  - Arrange to have someone prepare foods for Activity 7
  - Food Safety Tool Box (equipped with thermometers listed)
  - Painter's tape

- ❑ Standard Operating Procedures (may be USDA/NFSMI standard operating procedures)
- ❑ Pre-Lesson Assessment (if Lesson 2 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)
- ❑ Post-Lesson Assessment (if Lesson 2 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)





## LESSON INTRODUCTION AND LEARNING OBJECTIVES

Food safety is one of the basic responsibilities of all foodservice employees. Research conducted by the U.S. Food and Drug Administration (FDA) shows that basic food safety practices need to be improved. Active managerial control of foodborne illness risk factors was recommended by FDA. Areas identified as most in need of improvement included employee hand washing, cold holding, date marking of ready-to-eat foods, and cleaning and sanitizing of food contact surfaces. Thus, three key areas that need to be improved on in order to prevent foodborne illness include

- time and temperature control, particularly in the area of hot and cold holding;
- employee personal hygiene; and
- prevention of contamination.

Lesson 2 will focus on preventing foodborne illness. Following this lesson, participants will be able to

1. describe ways harmful bacteria can contaminate food,
2. list good personal hygiene practices that should be followed by foodservice employees,
3. demonstrate proper hand washing procedures to minimize hand-to-food cross-contamination,
4. list times when foodservice employees should wash their hands,
5. describe proper glove use,
6. demonstrate use of a food thermometer,
7. demonstrate how to calibrate a thermometer using the ice-point method,
8. describe ways to minimize food-to-food cross-contamination,
9. describe ways to minimize equipment-to-food cross-contamination,
10. list the responsibilities of foodservice managers in preventing foodborne illness,

11. list the responsibilities of foodservice employees in preventing foodborne illness, and
12. identify guidelines for responding to a reported foodborne illness.



## LESSON AT-A-GLANCE

Time	Topic	Task	Materials
5 minutes	<b>Introduction and Overview</b>	<ol style="list-style-type: none"> <li>1. Introduce instructor and class participants.</li> <li>2. Introduce Lesson 2.</li> <li>3. List lesson objectives.</li> </ol>	
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 132.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
10 minutes	<b>Objective 1</b> Describe ways in which harmful bacteria can contaminate food.	<b>Activity 1:</b> Contamination in the Foodservice Operation	<i>Serving It Safe</i> poster
15 minutes	<b>Objective 2</b> List good personal hygiene practices that should be followed by foodservice employees.	<p>Review personal hygiene practices.</p> <p><b>Activity 2:</b> Standard Operating Procedures for Personal Hygiene</p>	<p>Fact Sheets: <i>Personal Hygiene</i></p> <p>Handouts: USDA/NFSMI Standard Operating Procedure: <i>Personal Hygiene</i></p> <p>Standard Operating Procedure (from</p>

			participant’s schools – optional)
15 minutes	<p><b>Objective 3</b> Demonstrate proper hand washing procedures to minimize hand-to-food cross-contamination.</p> <p><b>Objective 4</b> List times when foodservice employees should wash their hands.</p>	<p><b>Activity 3:</b> <i>Wash Your Hands: Educating the School Community</i> Video</p> <p><b>Activity 4:</b> Demonstrate Proper Hand washing (optional)</p>	<p>Fact Sheet: <i>Hand Washing</i></p> <p>Handout: <i>Wash Your Hands: Educating the School Community</i> Video Viewing Guide</p> <p>Standard Operating Procedure: <i>Washing Hands</i></p>
5 minutes	<p><b>Objective 5</b> Describe proper glove use.</p>		<p>Mini poster: <i>Use Disposable Gloves Properly</i></p>
20 minutes	<p><b>Objective 6</b> Demonstrate use of a food thermometer.</p>	<p><b>Activity 5:</b> Types of Food Thermometers</p> <p><b>Activity 6:</b> <i>Using Thermometers</i> Video Clip</p> <p><b>Activity 7:</b> Taking Food Temperatures (optional)</p>	<p>Fact Sheet: <i>Using Food Thermometers</i></p> <p>Handouts: Types of Food Thermometers <i>Using Thermometers</i> Video Viewing Guide</p>
15 minutes	<p><b>Objective 7</b> Demonstrate how to calibrate a thermometer using the ice-point method.</p>	<p><b>Activity 8:</b> <i>Calibrating Thermometers</i> Video Clip</p> <p><b>Activity 9:</b> Calibrating a Food Thermometer (optional)</p>	<p>Fact Sheet: <i>Calibrating Thermometers</i></p> <p>Handouts: <i>Calibrating Thermometers</i> Video Viewing Guide</p>

			Ice-Water Method for Thermometer Calibration
			Thermometer Calibration Log
10 minutes	<p><b>Objective 8</b> Describe ways to minimize food-to-food cross-contamination.</p> <p><b>Objective 9</b> Describe ways to minimize equipment-to-food cross-contamination.</p>	<p><b>Activity 10:</b> Use Glowing Powder to Show Cross-Contamination (optional)</p> <p><b>Activity 11:</b> Demonstrate Proper Handling of Equipment and Utensils</p>	<p>Fact Sheets: <i>Preventing Contamination During Food Preparation</i></p> <p><i>Preventing Contamination in Food Bars</i></p> <p><i>Preventing Cross-Contamination During Food Storage</i></p>
10 minutes	<p><b>Objective 10</b> List the responsibilities of foodservice managers in preventing foodborne illness.</p> <p><b>Objective 11</b> List the responsibilities of foodservice employees in preventing foodborne illness.</p>	<p><b>Activity 12:</b> Identify Food Safety Responsibilities of Managers and Employees</p>	
10 minutes	<p><b>Objective 12</b> Identify guidelines for responding to a reported foodborne</p>	<p><b>Activity 13:</b> Responding to a Foodborne Illness</p>	<p>Handout: Responding to a Foodborne Illness</p>

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	illness.	
5 minutes	<b>Wrap Up</b>	
	<b>Pre- and Post-Lesson Assessment</b>	See page 132.
	Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.	Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.

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## LESSON 2: PREVENT FOODBORNE ILLNESS— UNDERSTANDING MICROORGANISMS LESSON PLAN

### Introduction and Overview

(5 minutes)

**SAY:** As you learned in Lesson 1, there are three types of hazards or contaminants that can cause food to be harmful. There are biological contaminants or microorganisms, chemicals, and physical objects that can make food harmful to eat. Research has identified three key areas in foodservice operations that need to be improved in order to minimize these hazards and prevent foodborne illness.

1. Employee personal hygiene
2. Prevention of contamination
3. Time and temperature control

Lesson 2 will focus on ways that we can prevent foodborne illness by focusing on these three important areas.

**Do:** Refer participants to the lesson objectives in the *Serving It Safe Seminar Participant's Workbook*, if provided.

**SAY:** After this lesson, you will be able to

1. describe ways harmful bacteria can contaminate food,
2. list good personal hygiene practices that should be followed by foodservice employees,
3. demonstrate proper hand washing procedures to minimize hand-to-food cross-contamination,
4. list times when foodservice employees should wash their hands,
5. describe proper glove use,
6. demonstrate use of a food thermometer,
7. demonstrate how to calibrate a thermometer using the ice-point method,
8. describe ways to minimize food-to-food cross-contamination,

9. describe ways to minimize equipment-to-food cross-contamination,
10. list the responsibilities of foodservice managers in preventing foodborne illness,
11. list the responsibilities of foodservice employees in preventing foodborne illness, and
12. identify guidelines for responding to a reported foodborne illness.

**Do:** (ONLY if Lesson 2 is presented as an individual training session)

Distribute the Pre- and Post- Lesson Assessment or ask participants to turn to page 132 in the *Serving It Safe Seminar Participant's Workbook*. Ask participants to take about 5 minutes to complete the assessment.





**Objective 1: Describe ways harmful bacteria can contaminate food. (10 minutes)**

**SAY:** Harmful microorganisms can contaminate food during any of the steps of the foodservice process. When we recognize how food can be contaminated, we can then take actions to control the possibilities for contamination.

**Do:** Complete Activity 1: Contamination in the Foodservice Operation.



**Activity 1: Contamination in the Foodservice Operation**

**Materials needed:**

- *Serving It Safe* poster
  - One sheet of flip chart paper with “Personal Hygiene” printed at the top and a second sheet with “Cross-Contamination” printed at the top
  - Painter’s tape (one roll)
  - Marker (for trainer)
1. Assign one of the eight steps of the foodservice process to participants (one step may be given to an individual, a pair of participants, or a group of three or four participants, depending on total number being trained).
  2. Ask participants to identify one way that food can become contaminated by poor personal hygiene and one way that food can become contaminated by cross-contamination during their assigned step of the foodservice process.
  3. Go through the steps in order. On the flip chart sheets, list how personal hygiene and cross-contamination could occur at each step.



4. After you have gone through all the steps, discuss the similarities among the steps for personal hygiene and cross-contamination.
5. Ask participants how foodservice employees could minimize contamination based on their observations.

**SAY:** We have identified many ways in which food may become contaminated. We saw that many of them were related to personal hygiene, time and temperature control, and cross-contamination. Now we will discuss ways that we can minimize cross-contamination in each of those areas.



**Objective 2: List good personal hygiene practices that should be followed by foodservice employees. (15 minutes)**

**SAY:** Personal hygiene has been identified in many research projects as one of the food safety practices that is most needed and often is not followed. Two studies by the Food and Drug Administration (FDA) identified personal hygiene as one of three areas where foodservice employees often are not in compliance with proper practices. Because there are compliance problems in foodservice, this is an area that we need to discuss.

All foodservice operations that have standard operating procedures (SOPs) will have at least one SOP that covers personal hygiene. Let's look at a sample SOP.

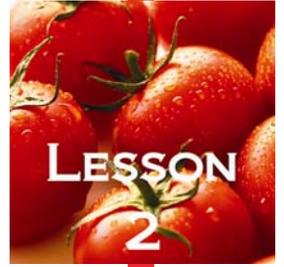
**Do:** Complete Activity 2: Standard Operating Procedures for Personal Hygiene.



**Activity 2: Standard Operating Procedures for Personal Hygiene**

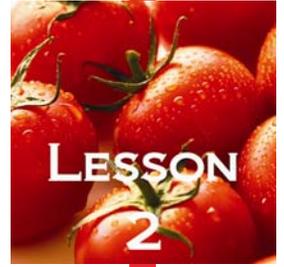
**Materials needed:**

- Personal Hygiene SOP from participant's schools (optional)
  - Fact Sheet: *Personal Hygiene*
  - Handout: USDA/NFSMI Standard Operating Procedure: *Personal Hygiene*
1. Distribute a copy of the personal hygiene SOP that is used in participants' schools (or if you have participants from multiple school districts, you may want to use the personal hygiene SOP that was developed by USDA/NFSMI).
  2. Go through the SOP and discuss various areas where there are usually requirements.



- Employee health
  - Employee dress, including uniforms, shoes, and aprons
  - Hair restraints
  - Fingernails
  - Jewelry
  - Wounds and bandages
  - Eating, drinking, tobacco use, and chewing gum
  - Appropriate tasting methods
3. Discuss how each of these areas relates to contamination of food, including physical and biological hazards.
  4. Distribute a copy of the Fact Sheet: *Personal Hygiene*.

**Optional:** Ask participants to compare the Personal Hygiene SOP used in their operation with the sample one developed by USDA/NFSMI. Identify areas that the two SOPs have in common and areas where there are differences.



**Objective 3: Demonstrate proper hand washing procedures to minimize hand-to-food cross-contamination. (10 minutes)**

**Objective 4: List times when foodservice employees should wash their hands. (5 minutes)**

**SAY:** Hand washing is one aspect of personal hygiene, and one of the most important practices for foodservice employees. We have talked about the fact that hands can contaminate food—so we know why we need to wash hands. Today we want to talk about how to properly wash hands and when hands should be washed.

**Do:** Complete Activity 3: *Wash Your Hands: Educating the School Community* Video. Activity 4: Demonstrate Proper Hand Washing is optional.



### **Activity 3: *Wash Your Hands: Educating the School Community* Video**

**Materials needed:**

- DVD player and monitor **OR** computer with Internet connection and monitor
- *Wash Your Hands: Educating the School Community* video
- Fact Sheet: *Hand Washing*
- Handouts:
  - *Wash Your Hands: Educating the School Community* Video Viewing Guide
  - USDA/NFSMI Standard Operating Procedure—*Washing Hands*



1. Show the *Wash Your Hands: Educating the School Community* video.
2. After watching the video, ask participants who observed **when** hands were washed to identify all of the times they observed. List on a piece of flip chart paper.
3. Ask participants who observed the video for **how** foodservice employees washed their hands to list techniques that they observed. List on a piece of flip chart paper.
4. Distribute a copy of the Fact Sheet: *Hand Washing* and the USDA/NFSMI SOP: *Washing Hands*.
5. Go through the Fact Sheet and SOP. Compare the key messages on the fact sheet with those generated by the group (written on the flip chart paper). Discuss any discrepancies that might occur.

**Note to trainer:** Answers for trainers for the video viewing guide are provided. Following is a list of times that hands should be washed in a foodservice operation.

## **RESPONSES TO WHEN TO WASH HANDS**

- Whenever hands are soiled
- Before beginning food preparation
- Before putting on disposable gloves
- Before serving customers
- After arriving at work
- After breaks
- After using the restroom (and again at the kitchen hand washing sink)
- After eating, drinking, smoking, or chewing tobacco or gum
- After using the telephone
- After using a handkerchief or tissue
- After handling inventory
- After handling raw food
- After touching or scratching areas of the body, such as ears, mouth, nose, or hair
- After coughing or sneezing
- After clearing or cleaning tables
- After clearing, scraping, or washing dirty plates or utensils



- After handling garbage
- After handling money on the cafeteria line
- After touching dirty aprons, clothing, or surfaces
- After using chemicals



### **Activity 4: Demonstrate Proper Hand Washing (optional)**

#### **Materials needed:**

- UV potion
  - UV lamp
  - Access to hand washing sink
1. Have participants dispense UV potion onto one hand.
  2. Rub hands vigorously.
  3. Scan with the UV lamp.
  4. Wash hands thoroughly with soap and water. (Note to trainer: You may want to ask some participants to do different hand washing techniques: splash and dash, wash quickly with soap and water, and following good hand washing techniques. That way, participants can compare the effectiveness of the various methods.)
  5. Dry hands with a paper towel. Use the paper towel to turn off the faucet.
  6. Scan hands again with UV lamp.
  7. Discuss observations, noting whether hand washing completely cleaned hands. Compare the various hand washing techniques.



**Objective 5: Describe proper glove use. (5 minutes)**

**SAY:** Many food codes require that foodservice employees wear disposable gloves when handling ready-to-eat foods, or those foods that will not receive any additional preparation such as cooking. Disposable gloves provide a second line of defense against cross-contamination, but only when they are used properly. There are several guidelines for using gloves that should be followed by foodservice employees.

- Use disposable gloves that fit well.
- Wash hands before and after use of disposable gloves.
- Wear gloves when preparing and serving ready-to-eat foods such as fresh fruits and vegetables, sandwiches, and salads.
- Change gloves frequently and between tasks.
- Never handle money and food while wearing the same gloves.
- Change gloves after sneezing, wiping nose, touching hair, or other contact with germs.
- Never reuse gloves.
- Dispose of soiled gloves after use.

**Do:** Post a copy of the mini poster *Use Disposable Gloves Properly*.

**ASK:** Why would it be important for disposable gloves to fit well? (If large gloves are used, there is a possibility that the fingertips of the gloves could be cut off, creating a potential physical hazard.)

**ASK:** Why is it important to wash hands before putting on gloves? (You would expect participants to mention preventing cross-contamination.)

**ASK:** Why is “change gloves between tasks” a guideline? (You would expect participants to mention preventing cross-contamination.)



**Objective 6: Demonstrate use of a food thermometer. (20 minutes)**

**SAY:** In Lesson 1, we talked about the Temperature Danger Zone.

**ASK:** What is the Temperature Danger Zone? (Make sure that employees know the appropriate temperatures of the temperature danger zone for the food code in effect in their school district. You may want to post the thermometer used in Lesson 1 to reinforce the temperature danger zone.)

**SAY:** In this lesson, we have identified time and temperature control as being important. It is sometimes difficult to maintain appropriate temperatures in foodservice operations. Time and temperature control may be difficult for many reasons

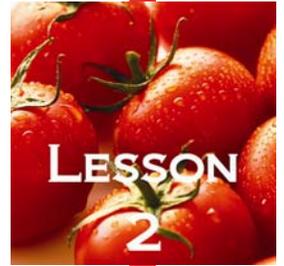
- Appropriate thermometers may not be available in a kitchen.
- Thermometers may not be calibrated.
- Employees may not take temperatures.
- Employees may not document the time and temperatures when they are taken.
- Batch cooking may not be done.
- Holding times are too long.
- Equipment is not functioning properly.

Today, we are going to discuss these areas so that we can make sure that temperatures are taken and recorded. First, let's talk about having the right thermometers in a foodservice operation.

**Do:** Complete Activity 5: Types of Food Thermometers and Activity 6: *Using Thermometers* Video Clip. Activity 7: Taking Food Temperature is optional.



## Activity 5: Types of Food Thermometers



### Materials needed:

- Food Safety Tool Box (could use actual thermometers, pictures of thermometers, or write the names of the thermometers on an index card)
    - Bimetallic stemmed thermometer
    - Bimetallic stemmed, oven-safe meat thermometer
    - Digital stemmed thermometer (thermistor)
    - Thermocouple
    - Infrared
    - Temperature sensitive strips such as T-Sticks®
  - Handout: Types of Food Thermometers
1. Divide participants into six groups by saying the names of the six types of thermometers.
  2. Give each group the thermometer for their group.
  3. Ask each group to review the handout, Types of Food Thermometers, to gather information about their specific thermometer.
  4. Ask one person from each group to teach their peers about their thermometer.

**SAY:** Thermometers have specific uses and should be used appropriately. Be sure to select the appropriate thermometer for each task.

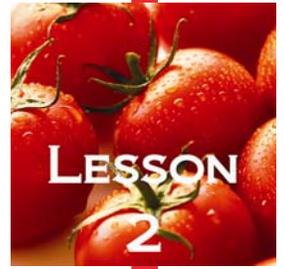
## Activity 6: Using Thermometers



## Video Clip

### Materials needed:

- DVD player and monitor **OR** computer with Internet connection and monitor
  - *Using Thermometers* video clip (segment 4 of the *Your Guide to Thermometers in Foodservice* video)
  - Handout: *Using Thermometers* Video Viewing Guide
  - Fact Sheet: *Using Food Thermometers*
1. Distribute copies of the *Using Thermometers* Video Viewing Guide.
  2. Show video.
  3. Discuss major points on the viewing guide.





## Activity 7: Taking Food Temperatures (optional)



### Materials needed:

- Package of frozen food
  - Cooked hamburger patty
  - Turkey roast
  - Digital thermometer (thermistor)
  - Infrared thermometer
1. Show participants the digital thermometer and the infrared thermometer.
  2. Ask participants to give examples of food temperatures that you would take with a digital thermometer.
  3. Ask participants to give examples of food temperatures that you would take with an infrared thermometer.
  4. Demonstrate taking the temperature for a frozen food with the infrared thermometer. Remind participants that infrared thermometers take surface temperatures, not internal temperatures. (Note to trainer: As an alternative, you could ask for a volunteer to demonstrate.)
  5. Demonstrate taking the internal temperature of a thin food, such as a cooked hamburger patty. (Note to trainer: As an alternative, you could ask for a volunteer to demonstrate.)
  6. Demonstrate taking the internal temperature of a thick food, such as a turkey roast. Be sure to take at least three temperatures. (Note to trainer: As an alternative, you could ask for a volunteer to demonstrate.)

**\*Note to trainer:** If it is not possible to use food at the seminar, you could consider using non-food items to simulate how to take temperatures. For example, frozen ice packs could simulate frozen food. Craft foam could be used to simulate casseroles or cuts of meat.



**Objective 7: Demonstrate how to calibrate a thermometer using the ice-point method. (15 minutes)**

**SAY:** Controlling time and temperature is an important part of a school food safety plan. There are standard times and temperatures that must be used for storing foods, cooking foods, holding foods, cooling foods, and reheating foods. There is a requirement that temperatures be taken at each of these steps.

**ASK:** What happens if the temperatures taken are not accurate?

**SAY:** Let's find out with an example. For hamburger patties, the *Food Code* specifies that they must be cooked to an internal temperature of 155 °F. That recommendation is based on the temperature at which *E. coli* O157:H7 is destroyed. Let's say that a cook takes the temperature of several hamburger patties and records that she cooked them to 155 °F. When the thermometer is checked, it is discovered that it measures 8 °F higher than the actual temperature. This means that the hamburger patties were only cooked to 147 °F, a temperature that is too low to kill the harmful bacteria.

This example points out the need for foodservice employees to use only accurate thermometers for taking food temperatures. To make sure that the thermometers are accurate, they need to be calibrated.

**Do:** Complete Activity 8: *Calibrating Thermometers* Video Clip or Activity 9: Use Ice-Water Method for Thermometer Calibration.



## Activity 8: *Calibrating Thermometers* Video Clip



### Materials needed:

- DVD player and monitor **OR** computer with Internet connection and monitor
  - *Calibrating Thermometers* video clip (segment 4 of the *Your Guide to Thermometers in Foodservice* video)
  - Handout: *Calibrating Thermometers* Video Viewing Guide
  - Fact Sheet: *Calibrating Thermometers*
1. Distribute copies of the *Calibrating Thermometers* Video Viewing Guide.
  2. Show video clip on calibrating thermometers from *Your Guide to Thermometers in Foodservice* video.
  3. Review responses to the video viewing guide.

**SAY:** (Optional) Now that you have seen a demonstration of calibrating a thermometer, you can practice.



## Activity 9: Use Ice-Water Method for Thermometer Calibration (optional)



### Materials needed:

- Bimetallic stemmed thermometers (one for each participant, if available)
  - 2-quart liquid measure
  - Crushed ice
  - Cold water
  - Calibration tool or wrench
  - Fact Sheet: *Calibrating Thermometers* (same as Activity 8)
  - Handouts:
    - Ice-Water Method for Thermometer Calibration
    - Thermometer Calibration Log
1. Divide participants into groups of three or four. Provide each group a liquid measure, bimetallic stemmed thermometers, and calibration tool or wrench.
  2. Demonstrate how to calibrate a thermometer (if you have not shown the video clip).
  3. Have each participant practice calibrating his/her thermometer.

**ASK:** How often should you calibrate your thermometers?

**SAY:** Thermometers should be calibrated frequently—ideally on a daily basis. Each time they are dropped, they must be calibrated again. Using the same thermometer to take temperatures of very cold and very hot foods may require that the thermometer be calibrated more frequently.

**Do:** Distribute Fact Sheet: *Calibrating Thermometers*. Distribute Handout: Ice-Water Method for Thermometer Calibration.



**SAY:** Each time that you calibrate a thermometer, you will need to record or document that you have calibrated it. You may have a thermometer calibration record that you use in your operation, or you may use the documentation form that was developed by the NFSMI.

**Do:** Refer to the Handout: Thermometer Calibration Log.



**Objective 8: Describe ways to minimize food-to-food cross-contamination. (5 minutes)**

**Objective 9: Describe ways to minimize equipment-to-food cross-contamination. (5 minutes)**

**SAY:** Now let's turn our attention to cross-contamination, one of the major ways in which food is contaminated. Cross-contamination is the transfer of bacteria or viruses from one surface to another surface. Cross-contamination can occur when contaminated hands or gloves touch food, when contaminated food comes in contact with another food, and when contaminated equipment or work surfaces come in contact with food.

We have already talked about the importance of hand washing at the appropriate times using proper methods. We have also talked about how to use gloves properly to prevent cross-contamination, as well as other personal hygiene practices that minimize contamination. Now let's see how cross-contamination can occur if we do not follow good hand washing and glove use practices.

**Do:** Complete Activity 10: Use Glowing Powder to Show Cross-Contamination.



## Activity 10: Using Glowing Powder to Show Cross-Contamination



### Materials needed:

- Invisible UV powder
  - UV lamp
1. Before beginning this activity, sprinkle a small amount of invisible UV powder on an object or surface. For example, you could sprinkle it on a pencil and clipboard that participants sign in on or you could sprinkle it on your hands and shake hands with participants as they come into the session.
  2. Make sure that a number of participants touch the object or surface.
  3. Darken the room. Scan the object or surface and participants' hands with the UV lamp.
  4. Discuss their observations and compare this with the transfer of bacteria or viruses.
  5. Explain that this is why hand washing is so important.
  6. Reinforce the statement: Hand washing is the single most important way to prevent the spread of germs that may lead to infection or foodborne illness.

**SAY:** While we know that hand-to-food is one of the main ways that cross-contamination occurs, cross-contamination can also occur because of

- food-to-food contamination, and
- equipment-to-food contamination.

Let's talk about how we can minimize food-to-food contamination. Then I would like for you to give me an example of something you do in your operation to minimize food-to-food contamination.

## POSSIBLE EXAMPLES

1. Store cooked foods and foods that will not be cooked in the refrigerator on a higher shelf than raw foods.
  - a. Place cooked spaghetti on a higher shelf than raw ground beef.
  - b. Place deli meats and cheeses on the top shelf.
2. Do not mix leftover food with fresh food.
  - a. Do not mix leftover tuna salad with a fresh batch of tuna salad.
  - b. Do not put newly opened canned fruit with canned fruit already on the salad bar.
  - c. Do not add old chili to new chili.
3. Wash fresh fruits and vegetables in cold, running water before peeling.
  - a. Wash cantaloupe before removing rind.
  - b. Wash potatoes before peeling.
  - c. Wash carrots before paring.
4. Wash all fresh produce that will be served whole, peeled, or cooked, such as apples or grapes, in cold, running water.
5. Do not prepare raw meats and raw fruits or vegetables on the same surface. These two types of food should not come in contact with each other.
  - a. Use separate preparation areas for meat and produce.
  - b. Use separate cutting boards (may be color coded).
  - c. Have different employees prepare meat and produce.

**SAY:** Now let's talk about ways that equipment and contact surfaces can cross-contaminate food.

**Do:** Complete Activity 11: Demonstrate Proper Handling of Equipment.



## Activity 11: Demonstrate Proper Handling of Equipment

### Materials needed:

- Flip chart paper
- Painter's tape
- Marker (one for trainer)
- Cutting board
- Glass
- Fork
- Serving spoon
- Other examples, as available

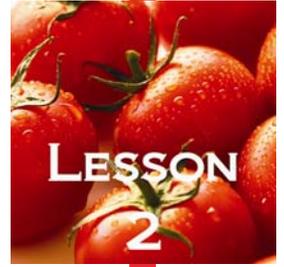
1. **Ask:** What are some ways that you have observed that equipment can cross-contaminate food?
2. As participants provide examples, record the examples on the flip chart paper. You will probably have multiple pages, so post them in the room. As you list items, talk about how cross-contamination can be minimized in each instance.
3. Ask for a volunteer from each table to demonstrate how equipment, dishes, and utensils should be handled properly (using props provided).

### POSSIBLE EXAMPLES

- Cutting boards/food contact surfaces
  - Use separate cutting boards for different foods.
  - Use color-coded cutting boards.
  - Use designated food preparation areas (meat prep, salad prep, etc.).
  - Clean and sanitize cutting boards and work surfaces after each use.
- Equipment
  - Clean and sanitize equipment after each use.



- Can openers
  - Clean and sanitize can opener and blades after each use.
- Storage containers, pans, utensils
  - Never reuse single-use containers, such as old mayonnaise jars or single-use plastic containers.
  - Clean and sanitize before use.
  - Replace serving utensils frequently, at least when a new pan is being served.
- Glasses, trays, flatware, dishes, and serving utensils
  - Clean and sanitize before use.
  - Handle clean items only with clean hands. (For example, don't load the dish machine and then unload it without washing hands between tasks.)
  - Handle items only on surfaces that will never touch the food or where a person's mouth will touch. (For example, touch only the bottom of plates, bottom of glasses, and handles of flatware and utensils.)
- Film, foil, parchment paper
  - Discard after one use. **Never** reuse.
  - Use on clean and sanitized surfaces.



**Objective 10:** List the responsibilities of foodservice managers in preventing foodborne illness. (5 minutes)

**Objective 11:** List the responsibilities of foodservice employees in preventing foodborne illness. (5 minutes)

**SAY:** As we have discussed, food safety is very important. Everyone employed in school foodservice has an important role in ensuring the safety of food served to children.

Managers and employees have some similar responsibilities, but they also have some unique responsibilities.

**Do:** Complete Activity 12: Identify Food Safety Responsibilities of Managers and Employees.



## Activity 12: Identify Food Safety Responsibilities of Managers and Employees



### Materials needed:

- Flip chart paper
  - Painter's tape
  - Markers (one for each table)
1. Assign half of the tables to brainstorm the food safety responsibilities of foodservice managers and half of the tables to brainstorm the food safety responsibilities of foodservice employees.
  2. Ask each group to write their responses on a sheet of flip chart paper and post it on the board or wall.
  3. Ask each group to do a gallery walk to review what other groups have mentioned. Tell them they can add responsibilities if they see one that is left off the list.
  4. Briefly discuss the responsibilities.

### POSSIBLE EXAMPLES

#### Responsibilities of Managers

- Knowing and implementing local and state public health regulations regarding food safety and sanitation
- Solving problems identified on the current health inspection
- Maintaining up-to-date knowledge about food safety and sanitation
- Training and supervising employees about food safety
- Holding employees responsible for following food safety requirements and guidelines
- Implementing a food safety program in their schools



## Responsibilities of Employees

- Learning about food safety
- Following local or state food safety requirements
- Following guidelines such as
  - monitoring as specified in the school's food safety plan,
  - taking corrective actions if standards are not met,
  - keeping accurate records, and
  - letting the foodservice manager know about problems or areas that can be improved.

**SAY:** Ultimately, the foodservice manager is responsible for implementing a strong food safety program to be in compliance with the Child Nutrition and WIC Reauthorization Act of 2004. But the foodservice manager cannot implement the program alone—each foodservice employee must fulfill his or her responsibilities. It really is a team effort!



**Objective 12: Identify guidelines for responding to a reported foodborne illness. (10 minutes)**

**SAY:** We have been discussing ways that we can prevent a foodborne illness. We hope that by following these best practices we will never have a foodborne illness in our schools. However, even when implementing the best practices, there may still be occasions when there will be symptoms of a foodborne illness that will be reported to the school foodservice manager. In the worst case, there may actually be a foodborne illness outbreak. When a complaint is received, a foodservice manager must respond correctly and demonstrate leadership.

**Do:** Complete Activity 13: Responding to a Foodborne Illness.



**Activity 13: Responding to a Foodborne Illness**

**Materials needed:**

- Pens (one for each participant)
- Handout: Responding to a Foodborne Illness

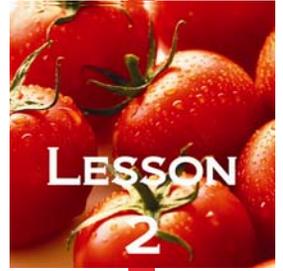
1. Distribute a copy of the Handout: Responding to a Foodborne Illness.
2. Ask participants to fill in the blanks as the general guidelines for responding to a foodborne illness are discussed.
3. Present the general guidelines for a foodservice manager to follow when a foodborne illness is suspected:
  1. **Be calm and cooperate with the health department.** There may be many plausible explanations for the symptoms that the student/students are experiencing. They may have nothing to do with food served in the cafeteria. Remaining calm will help you



respond rationally and systematically to the situation. Don't panic. Calmly approach the situation based on what you have been taught to do.

- 2. Talk with your supervisor immediately to communicate the situation and seek additional guidance.** Immediately let your district school nutrition director know about the situation. The director will provide guidance on how to proceed.
- 3. Stop serving the suspected food.** If you have any idea about which food might have been implicated, stop serving it or using it as an ingredient.
- 4. Keep samples of suspect foods.** If you have any idea about foods that might have been implicated, save samples in the original container, containers that have been cleaned and sanitized, or new plastic bags. Securely wrap the samples and label with the contents and date. Mark “DO NOT USE AND DO NOT DISCARD.” Store the samples in the refrigerator until you are told that they can be discarded. If possible, save the container, box, case, wrapping, and metal clips used on the original packaging. Save the food label and invoice in case the supplier needs to be contacted.
- 5. Cooperate with the health department to gather information.** If warranted, the local health department will conduct an investigation. Follow directions from the individual who is leading the investigation. This may include providing food samples, providing records, or answering questions about food handling practices in your operation.
- 6. Report the information you were asked to assemble.** Provide all information requested, even if the information is not all positive.

7. **Do not give medical advice—that should be left to the health professionals.** If a foodborne outbreak is suspected, cooperate with the health department and let them provide any information needed. Be careful not to diagnose, interpret symptoms, or suggest treatments.
  
8. **Direct all media inquiries to the designated school district representative.** Work with your district foodservice director to direct all inquiries to the appropriate spokesperson within the school district.



## Lesson Wrap Up

(5 minutes)



**ASK:** What is one food safety practice that you learned today that you think could be improved in your school foodservice operation?

**SAY:** We have learned many good food safety practices that can be used every day in a foodservice operation. While we all wash our hands, research has shown that typical foodservice employees do not wash their hands often enough and often do not use the proper techniques for hand washing. Be more aware of your hand washing behaviors and those of your fellow employees. Also, temperatures of food and equipment should be taken often—with calibrated thermometers—and recorded. Use these basic food safety practices to improve the safety of the food you serve in your school.

**ASK:** Do you have any questions about anything we have learned in this lesson?

**Do:** Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find the answers and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.

**Do:** (ONLY if Lesson 2 is presented as an individual training session) Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 54 in the *Serving It Safe Participant's Workbook*. Ask participants to take 5 minutes to complete the assessment.

When participants have completed the assessment, review the answers with the group provided on page 133.

## PERSONAL HYGIENE

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent contamination of food by foodservice employees

**Scope:** This procedure applies to foodservice employees who handle, prepare, or serve food.

**Key Words:** Personal hygiene, cross-contamination, contamination

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow your employee health policy. (Note to trainer: An employee health policy is not included in this resource.)
4. Report to work in good health, clean, and dressed in clean attire.
5. Change apron when it becomes soiled.
6. Wash hands properly, frequently, and at the appropriate times.
7. Keep fingernails trimmed, filed, and maintained so that the edges are cleanable and not rough.
8. Avoid wearing artificial fingernails and fingernail polish.
9. Wear single-use gloves if artificial fingernails or fingernail polish are worn.
10. Do not wear any jewelry except for a plain ring such as a wedding band.
11. Treat and bandage wounds and sores immediately. When hands are bandaged, single-use gloves must be worn.
12. Cover a lesion containing pus with a bandage. If the lesion is on a hand or wrist, cover with an impermeable cover such as a finger cot or stall and a single-use glove.
13. Eat, drink, use tobacco, or chew gum only in designated break areas where food or food contact surfaces will not become contaminated.
14. Taste food the correct way.
  - Place a small amount of food into a separate container.
  - Step away from exposed food and food contact surfaces.

- Use a teaspoon to taste the food. Remove the used teaspoon and container to the dish room. Never reuse a spoon that has already been used for tasting.
- Wash hands immediately.

15. Wear suitable and effective hair restraints while in the kitchen.

**Monitoring:**

1. A designated foodservice employee will inspect employees when they report to work to be sure that each employee is following this SOP.
2. The designated foodservice employee will monitor that all foodservice employees are adhering to the personal hygiene policy during all hours of operation.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Discard affected food.

**Verification and Record Keeping:**

The foodservice manager will verify that foodservice employees are following this SOP by visually observing the employees during all hours of operation. The foodservice manager will complete the Food Safety Checklist daily. Foodservice employees will record any discarded food on the Damaged or Discarded Product Log. The Food Safety Checklist and Damaged or Discarded Product Logs are to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

**LESSON 2, ACTIVITY 3**  
*Wash Your Hands: Educating the School Community*  
**Video Clip Instructions**



Prior to the seminar, get the *Wash Your Hands: Educating the School Community* video ready to play. Go to [www.nfsmi.org](http://www.nfsmi.org) to download the video. When you get to the Web page, go to the **Document Library**. In the **Education and Training Resources by Title** listing, find the Serving It Safe, 3<sup>rd</sup> Edition link. On the Serving It Safe page, select the video, *Video Clip Wash Your Hands: Educating the School Community*. Use the WMV version to download and save to your computer. Have this clip ready to play on your computer before the seminar begins.

If you have any problems accessing the video, please contact NFSMI for additional help at 1-800-321-3054.

## LESSON 2, ACTIVITY 3

### *Wash Your Hands: Educating the School Community* Video Viewing Guide



**Directions:** As you view the video, *Wash Your Hands: Educating the School Community*, look for examples of **when** hands are washed and **how** hands are washed. Record them on the form below.

When Hands Are Washed	How Hands Are Washed

## LESSON 2, ACTIVITY 3

### *Wash Your Hands: Educating the School Community* Video Viewing Guide (Answers for Trainers)



**Directions:** As you view the video, *Wash Your Hands: Educating the School Community*, look for examples of **when** hands are washed and **how** hands are washed. Record them on the form below.

When Hands Are Washed	How Hands Are Washed
<ul style="list-style-type: none"> <li>• After sneezing</li> <li>• When reporting to work</li> <li>• After using the restroom</li> <li>• Before putting gloves on</li> <li>• After taking gloves off</li> <li>• Before food preparation</li> <li>• After putting ground beef in tilting skillet</li> <li>• After handling money</li> <li>• After cleaning</li> <li>• After taking out the garbage</li> <li>• After handling dirty dishes</li> </ul>	<ul style="list-style-type: none"> <li>• Used soap</li> <li>• Rubbed soapy water up to elbows</li> <li>• Used warm, running water</li> <li>• Washed for 20 seconds</li> <li>• Rubbed hands together</li> <li>• Rubbed between fingers</li> <li>• Used single-use disposable towels to dry</li> <li>• Turned off faucet with disposable towel</li> <li>• Used paper towel to open door</li> <li>• Used foot pedal on trash can to dispose of paper towel</li> </ul>



## WASHING HANDS

(Sample USDA/NFSMI Standard Operating Procedure)

**Purpose:** To prevent foodborne illness by contaminated hands

**Scope:** This procedure applies to anyone who handles, prepares, and serves food.

**Key Words:** Hand washing, cross-contamination

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Post hand washing signs or posters in a language understood by all foodservice staff near all hand washing sinks, in food preparation areas, and restrooms.
4. Use designated hand washing sinks for hand washing only. Do not use food preparation, utility, or dishwashing sinks for hand washing.
5. Provide warm running water, soap, and a means to dry hands. Provide a waste container at each hand washing sink or near the door in restrooms.
6. Keep hand washing sinks accessible anytime employees are present.
7. Wash hands
  - before starting work;
  - during food preparation;
  - when moving from one food preparation area to another;
  - before putting on or changing gloves;
  - after using the toilet;
  - after sneezing, coughing, or using a handkerchief or tissue;
  - after touching hair, face, or body;
  - after smoking, eating, drinking, or chewing gum or tobacco;
  - after handling raw meats, poultry, or fish;
  - after any clean-up activity such as sweeping, mopping, or wiping counters;
  - after touching dirty dishes, equipment, or utensils;
  - after handling trash;
  - after handling money; and
  - after any time the hands may become contaminated.
8. Follow proper hand washing procedures as indicated below.
  1. Wet hands and forearms with warm, running water at least 100 °F and apply soap.

2. Scrub lathered hands and forearms, under fingernails, and between fingers for at least 10-15 seconds. Rinse thoroughly under warm, running water for 5-10 seconds.
  3. Dry hands and forearms thoroughly with single-use paper towels.
  4. Dry hands for at least 30 seconds if using a warm-air hand dryer.
  5. Turn off water using paper towels.
  6. Use paper towel to open door when exiting the restroom.
9. Follow FDA recommendations when using hand sanitizers. These recommendations are as follows.
- Use hand sanitizers only after hands have been properly washed and dried.
  - Use only hand sanitizers that comply with the *Food Code*. Confirm with the manufacturers that the hand sanitizers used meet these requirements.
  - Use hand sanitizers in the manner specified by the manufacturer.

**Monitoring:**

1. A designated employee will visually observe the hand washing practices of the foodservice staff during all hours of operation.
2. The designated employee will visually observe that hand washing sinks are properly supplied during all hours of operation.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Ask employees who are observed not washing their hands at the appropriate times or using the proper procedure to wash their hands immediately.

**Verification and Record Keeping:**

The foodservice manager will complete the Food Safety Checklist daily to indicate that monitoring is being conducted as specified. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## LESSON 2, ACTIVITY 5

### Types of Food Thermometers



Thermometer Description	Advantages/Disadvantages
<p><b>Bimetallic Stemmed</b></p> <ul style="list-style-type: none"> <li>• Used to check internal temperatures of food</li> <li>• Range of 0-220 °F</li> <li>• Sensing area is from the tip to a half-inch past the dimple on the stem. It is important to insert the stem to above the dimple to get an accurate reading.</li> </ul>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Readily available</li> <li>• Easy to calibrate</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Not tip sensitive—sensing area is about 2”</li> <li>• Temperatures averaged over sensing area</li> <li>• Not effective for thin foods, such as hamburger patties</li> <li>• Loses calibration with physical shock such as dropping</li> <li>• Dial may be difficult to read</li> </ul>
<p><b>Bimetallic Stemmed, oven-safe meat</b></p> <ul style="list-style-type: none"> <li>• Used in muscle meats, such as roasts, while cooking in oven</li> <li>• Range of 130-190 °F</li> <li>• Inserted 2-2 ½” into thickest part of the muscle</li> <li>• Can remain in meat during the entire cooking process</li> </ul>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Monitors safe end-point cooking temperature so recommendations are met</li> <li>• Monitors temperatures for quality of product</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Heat conduction of metal stem can cause false high readings (especially if inserted close to bone)</li> <li>• Not effective for thin meats</li> <li>• Loses calibration with physical shock, such as dropping</li> </ul>
<p><b>Digital Stemmed (Thermistor)</b></p> <ul style="list-style-type: none"> <li>• Used to check internal temperatures of food</li> </ul>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Gives fast readings</li> <li>• Easy to read</li> <li>• Tip sensitive—can measure temperature of thick and thin foods</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Not all models can be calibrated</li> </ul>

<p><b>Thermocouple</b></p> <p>Used with probes of various types:</p> <ul style="list-style-type: none"> <li>• Immersion—measures temperature of liquids</li> <li>• Penetration—measures internal temperature of solid or liquid food</li> <li>• Surface—measures surface temperatures, such as griddle tops</li> </ul>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Digital temperature reading</li> <li>• Tip sensitive</li> <li>• Variety of probes are available</li> <li>• Provides rapid readings</li> <li>• Durable</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• May be expensive to calibrate</li> <li>• Accuracy may vary due to signal or change in voltage</li> <li>• Accuracy seems to vary proportional to cost</li> </ul>
<p><b>Infrared</b></p> <ul style="list-style-type: none"> <li>• Designed to take surface temperatures from up to 4 feet away</li> <li>• Provides quick check of temperatures at receiving</li> <li>• Remove barriers because glass and shiny surfaces affect readings</li> </ul>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Fast</li> <li>• Accurate</li> <li>• Nondestructive, noncontact measurement of temperature</li> <li>• Eliminates cross-contamination</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Cannot measure internal temperatures</li> <li>• Environmental conditions, such as relative humidity, affect accuracy</li> <li>• Accuracy is affected by surface emissivity (ability of a surface to emit heat by radiation; varies by metal type and surface color and polish) and shiny surfaces</li> <li>• May be expensive to calibrate</li> </ul>
<p><b>Temperature Sensitive Strips</b> (such as T-Sticks®)</p> <ul style="list-style-type: none"> <li>• Single-use</li> <li>• Designed for specific endpoint temperatures</li> </ul>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Accurate</li> <li>• Easy to use</li> <li>• Fast</li> <li>• Time savings—does not require calibration and sanitizing</li> <li>• Available for a variety of temperatures</li> <li>• Reads temperatures within 5 seconds</li> </ul>

	<ul style="list-style-type: none"><li>• Eliminates possibility for cross-contamination</li><li>• Temperature indicator can be saved on temperature documentation forms as evidence that temperatures were checked</li></ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"><li>• Expensive because of single-use design</li><li>• Several different ones are needed, depending on use. For example, T-Sticks® are available for 140 °F, 160 °F, 165 °F, and 170 °F.</li></ul>
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Source: Adapted from National Food Service Management Institute. (2009). *Thermometer Information Resource*. University, MS: Author.

## **LESSON 2, ACTIVITY 6**

### *Using Thermometers*

#### **Video Clip Instructions**

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Prior to the seminar, download the *Using Thermometers* video clip to your hard drive. (This video clip is segment 4 of the *Your Guide to Thermometers in Foodservice* video.) Go to **www.nfsmi.org** to download the video. When you get to the Web page, go to the **Document Library**. In the **Education and Training Resources by Title** listing, find the Serving It Safe, 3<sup>rd</sup> Edition link. On the Serving It Safe page, select the video, *Video Clip Using Thermometers*. Use the WMV version to download and save to your computer. Have this clip ready to play on your computer before the seminar begins.

If you have any problems accessing the video, please contact NFSMI at 1-800-321-3054.

## LESSON 2, ACTIVITY 6

### *Using Thermometers* Video Viewing Guide



1. What types of thermometers did you see used in the video?

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_.

2. What temperatures were recommended for the following foods?

Ready-to-eat foods \_\_\_\_\_

Pork \_\_\_\_\_

Ground beef \_\_\_\_\_

Poultry \_\_\_\_\_

Soups/casseroles \_\_\_\_\_

Reheated foods \_\_\_\_\_

3. When taking temperatures of roasts, it is important to insert the thermometer in the \_\_\_\_\_ of the roast, and to avoid putting the thermometer next to \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_.

4. It is important to document temperatures. When you do, you should include the \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

5. Thermometers should be properly \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

## LESSON 2, ACTIVITY 6

### *Using Thermometers* Video Viewing Guide (Answers for Trainers)



1. What types of thermometers did you see used in the video?  
infrared, bimetallic stemmed, digital,  
thermocouple, single use.
2. What temperatures were recommended for the following foods:  

Ready-to-eat foods	<u>135 °F</u>
Pork	<u>145 °F</u>
Ground beef	<u>155 °F</u>
Poultry	<u>165 °F</u>
Soups/casseroles	<u>165 °F</u>
Reheated foods	<u>165 °F</u>
3. When taking temperatures of roasts, it is important to insert the thermometer in the center of the roast, and to avoid putting the thermometer next to bone, gristle, or fat.
4. It is important to document temperatures. When you do, you should include the date, time, temperature, and initials.
5. Thermometers should be properly cleaned, sanitized, and stored.

## LESSON 2, ACTIVITY 8

### *Calibrating Thermometers*

#### Video Clip Instructions



Prior to the seminar, download the *Calibrating Thermometers* video clip to your hard drive. (This video clip is segment 3 of the *Your Guide to Thermometers in Foodservice* video.) Go to [www.nfsmi.org](http://www.nfsmi.org) to download the video. When you get to the Web page, go to the **Document Library**. In the **Education and Training Resources by Title** listing, find the Serving It Safe, 3<sup>rd</sup> Edition link. On the Serving It Safe page, select the video, *Video Clip Calibrating Thermometers*. Use the WMV version to download and save to your computer. Have this clip ready to play on your computer before the seminar begins.

If you have any problems accessing the video, please contact NFSMI at 1-800-321-3054.

**LESSON 2, ACTIVITY 8**  
*Calibrating Thermometers*  
**Video Viewing Guide**



1. What tools or supplies did you observe being used?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
  
2. What were the steps used to calibrate the thermometer using the ice-water method?
  - a. Fill a \_\_\_\_\_ with crushed ice.
  - b. Add \_\_\_\_\_ to within 1" of the top of container.
  - c. Stir \_\_\_\_\_.
  - d. Let sit for \_\_\_\_\_ minute(s).
  - e. Place \_\_\_\_\_ in container so that the \_\_\_\_\_ is completely submerged.
  - f. Let the thermometer stay in the ice-water mixture for \_\_\_\_\_ second(s).
  - g. Place the \_\_\_\_\_ on the hex adjusting nut and rotate until the thermometer reads 32 °F.

## LESSON 2, ACTIVITY 8

### *Calibrating Thermometers*

#### Video Viewing Guide

(Answers for Trainers)



1. What tools or supplies did you observe being used?
  - a. Container
  - b. Ice
  - c. Cold Water
  - d. Thermometer
  - e. Calibration tool or wrench
  
2. What were the steps used to calibrate the thermometer using the ice-water method?
  - a. Fill a container with crushed ice.
  - b. Add water to within 1" of the top of container.
  - c. Stir ice and water mixture.
  - d. Let sit for 1 minute(s).
  - e. Place thermometer in container so that the sensing area is completely submerged.
  - f. Let the thermometer stay in the ice water mixture for 30 second(s).
  - g. Place the calibration tool on the hex adjusting nut and rotate until the thermometer reads 32 °F.

## LESSON 2, ACTIVITY 9

### Ice-Water Method for Thermometer Calibration (for bimetallic stemmed and digital thermometers that can be calibrated)



Equipment/ Ingredients	Quantity	Directions
2-quart measure Crushed ice Cold water	One per participant To fill container To fill container	<ol style="list-style-type: none"> <li>1. Fill the 2-quart measure with ice.</li> <li>2. Add water to within 1" of top of container.</li> <li>3. Stir mixture well.</li> <li>4. Let sit for 1 minute.</li> </ol>
Thermometer	One per participant, if available	<ol style="list-style-type: none"> <li>5. Place thermometer in container so that the sensing area of stem or probe is completely submerged (over the dimple).</li> <li>6. Do <b>not</b> let the thermometer stem/probe touch sides or bottom of container.</li> <li>7. Let thermometer stay in the ice water for 30 seconds or until the dial stops moving.</li> </ol>
Calibration tool or wrench	One per participant (or two participants could share)	<ol style="list-style-type: none"> <li>8. Place the calibration tool on the hex adjusting nut and rotate until the thermometer dial reads 32 °F (while in ice water).</li> <li>9. Some digital stemmed thermometers (thermistors) and thermocouples have a reset button, which should be pushed.</li> <li>10. Repeat process with each thermometer.</li> </ol>

Source: National Food Service Management Institute. (2009). *Thermometer information resource*. University, MS: Author.



## LESSON 2, ACTIVITY 13

### Responding to a Foodborne Illness

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1. Be calm and \_\_\_\_\_ with the health department.
2. Talk with your \_\_\_\_\_ immediately to communicate the situation and seek additional guidance.
3. Stop serving the suspected \_\_\_\_\_.
4. Keep \_\_\_\_\_ of suspect foods.
5. Cooperate with the \_\_\_\_\_ to gather information.
6. Report the \_\_\_\_\_ you were asked to assemble.
7. Do not give \_\_\_\_\_ advice—that should be left to the \_\_\_\_\_.
8. Direct all \_\_\_\_\_ inquiries to the designated \_\_\_\_\_ representative.

## LESSON 2, ACTIVITY 13

### Responding to a Foodborne Illness

(Answers for Trainer)



1. Be calm and cooperate with the health department.
2. Talk with your supervisor immediately to communicate the situation and seek additional guidance.
3. Stop serving the suspected food.
4. Keep samples of suspect foods.
5. Cooperate with the health department to gather information.
6. Report the information you were asked to assemble.
7. Do not give medical advice—that should be left to the professionals.
8. Direct all media inquiries to the designated school district representative.

## LESSON 2: PREVENT FOODBORNE ILLNESS— UNDERSTANDING MICROORGANISMS PRE- AND POST-LESSON ASSESSMENT

1. Which of the following practices has been identified as a main cause of foodborne illnesses?
  - a. Purchasing food from approved sources
  - b. Using written standard operating procedures
  - c. Abusing the time-temperature relationship
  - d. Checking temperatures of food during cooking
  
2. Cross-contamination can occur when
  - a. ready-to-eat meats are stored on the top shelf in the refrigerator,
  - b. hands are washed between tasks,
  - c. color-coded cutting boards are used, or
  - d. a new can of peaches is added to leftover peaches and put on the salad bar.
  
3. How long should employees wash their hands?
  - a. 10 seconds
  - b. 20 seconds
  - c. 30 seconds
  - d. 40 seconds
  
4. Which of the following statements is **true** about taking food temperatures?
  - a. A bimetallic stemmed thermometer may be used for taking temperatures of hamburger patties.
  - b. Infrared thermometers can be used for taking cooking temperatures.
  - c. Thermometers rarely need to be calibrated.
  - d. Temperatures should be taken in multiple locations for foods such as casseroles.
  
5. Which of the following statements is **true** about thermometer calibration?
  - a. Thermometers should be calibrated each time they are dropped.
  - b. Thermometers should be calibrated at least monthly.
  - c. Thermometers do not need to be calibrated because they are guaranteed to be accurate.
  - d. Ice-water calibration is the only acceptable method.



## LESSON 2: PREVENT FOODBORNE ILLNESS— UNDERSTANDING MICROORGANISMS PRE- AND POST-LESSON ASSESSMENT ANSWERS

1. Which of the following practices has been identified as a main cause of foodborne illnesses?
  - a. Purchasing food from approved sources
  - b. Using written standard operating procedures
  - c. Abusing the time-temperature relationship
  - d. Checking temperatures of food during cooking
  
2. Cross-contamination can occur when
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  - b. hands are washed between tasks,
  - c. color-coded cutting boards are used, or
  - d. a new can of peaches is added to leftover peaches and put on the salad bar.
  
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  - b. Thermometers should be calibrated at least monthly.
  - c. Thermometers do not need to be calibrated because they are guaranteed to be accurate.
  - d. Ice-water calibration is the only acceptable method.



## RESOURCES AND REFERENCES

### RESOURCES

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## **LESSON 3: BASIC FACTS ABOUT MICROORGANISMS**

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## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for Lesson 3: Basic Facts About Microorganisms. Keep track of your progress by checking off tasks as they are completed.

### Lesson 3 Preparation Checklist

Done



Prepare for the lesson.

- Carefully read the lesson plan.
- Review learning activities.
- Make copies of the Pre- and Post-Lesson Assessment.\*

**\*Note:** Use only if this *Serving It Safe Seminar* lesson is taught individually. Assessments are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

- Make copies of Lesson 3 Handouts.\*
    - Common Foodborne Illnesses: Symptoms and Prevention
    - Scenarios: Common Foodborne Illnesses
- \*Note:** Handouts are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

Gather materials.

- Activity 1: Identify Common Foodborne Illnesses**
  - Pencils
  - Scenarios: Common Foodborne Illnesses
  - Handout: Common Foodborne Illnesses—Symptoms and Prevention



- ❑ **Activity 2: Factors that Support Bacterial Growth**
  - ❑ Flip chart paper (two tablets or 12 sheets)
  - ❑ Easels (two, or tape sheets of flip chart paper to the wall)
  - ❑ Painter's tape (one roll)
  - ❑ Markers (one for each group)
  - ❑ Basket
  - ❑ Six 2" x 3" pieces of paper
  - ❑ Small prize (optional)
- ❑ **Activity 3: Practices to Prevent Foodborne Illness**
  - ❑ Flip chart paper
  - ❑ Markers (one for each table, plus one for trainer)
  - ❑ Handout: Common Foodborne Illnesses—Symptoms and Prevention

**On seminar day:**

- ❑ Set up room with flip chart paper for activities.
- ❑ Place pens or pencils on tables (one for each participant).
- ❑ Place one marker on each table.
- ❑ On the instructor's table, place the following:
  - ❑ Handouts (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - ❑ Painter's tape
  - ❑ Basket with six 2" x 3" papers folded, with the words **food, acidity, temperature, time, oxygen, and moisture** on them
  - ❑ Pre-Lesson Assessment (if Lesson 3 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)
  - ❑ Post-Lesson Assessment (if Lesson 3 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)

## LESSON INTRODUCTION AND LEARNING OBJECTIVES



Microorganisms are everywhere in our environment. Some of them can make people sick. It is important to know the common causes of foodborne illness and the ways that foodservice employees can prevent growth of microorganisms.

Lesson 3 will focus on the basic facts about microorganisms. Following this lesson, participants will be able to

1. list common causes of foodborne illness,
2. list three common foodborne illnesses,
3. describe factors that support growth of bacteria, and
4. describe ways that foodservice employees can prevent foodborne illness.

## LESSON AT-A-GLANCE

Time	Topic	Task	Materials
5 minutes	<b>Introduction and Overview</b>	<ol style="list-style-type: none"> <li>1. Introduce instructor and class participants.</li> <li>2. Introduce Lesson 3.</li> <li>3. List lesson objectives.</li> </ol>	
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 164.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
5 minutes	<b>Objective 1</b> List common causes of foodborne illness.		
30 minutes	<b>Objective 2</b> List three common foodborne illnesses.	<b>Activity 1:</b> Identify Common Foodborne Illnesses	Handouts: Common Foodborne Illnesses—Symptoms and Prevention  Scenarios: Common Foodborne Illnesses
30 minutes	<b>Objective 3</b> Describe factors that support growth of bacteria.	<b>Activity 2:</b> Factors that Support Bacterial Growth	

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15 minutes	<b>Objective 4</b> Describe ways that foodservice employees can prevent foodborne illness.	<b>Activity 3:</b> Practices to Prevent Foodborne Illness	Handouts: Common Foodborne Illnesses—Symptoms and Prevention
<hr/>			
5 minutes	<b>Wrap Up</b>		
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 164.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.

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## LESSON 3: BASIC FACTS ABOUT MICROORGANISMS LESSON PLAN



### Introduction and Overview

(5 minutes)

- SAY:** Microorganisms are everywhere in our environment. Some microorganisms (bacteria or yeast) are useful. They are what makes the blue veins in blue cheese and the holes in Swiss cheese. Bacteria are responsible for making fermented sausage, pickles, yogurt, buttermilk, and sauerkraut. Unfortunately, there are microorganisms that are harmful and will cause foodborne illness. As child nutrition professionals, we have to learn about these microorganisms and ways we can prevent the harmful ones from making the food we serve unsafe.
- Do:** Refer participants to the lesson objectives in the *Serving It Safe Seminar Participant's Workbook*, if provided.
- SAY:** After this lesson, you will be able to
1. list common causes of foodborne illness,
  2. list three common foodborne illnesses,
  3. describe factors that support growth of bacteria, and
  4. describe ways that foodservice employees can prevent foodborne illness.
- Do:** (ONLY if Lesson 3 is presented as an individual training session)  
Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 68 in the *Serving It Safe Seminar Participant's Workbook*. Ask participants to take about 5 minutes to complete the assessment.

**Objective 1: List common causes of foodborne illness. (5 minutes)**



**ASK:** What is the most common cause of foodborne illnesses?

**DO:** Pause to allow time for participants to respond.

**SAY:** Those of you who said viruses are correct. You probably have heard the term norovirus or Norwalk-type virus. That is the leading cause of foodborne illness.

Pathogens are harmful microorganisms that cause illness. There are two groups of pathogens—bacteria and viruses.

There are also microorganisms that are classified as spoilage microorganisms. Spoilage microorganisms include two groups of fungi: molds and yeasts. Mold and yeast cause food to spoil and may cause illness.



**Objective 2: List three common foodborne illnesses. (30 minutes)**

**SAY:** There are many types of foodborne illnesses. Some are more common than others. Today we will talk about several common foodborne illnesses caused by bacteria, including symptoms, the time of onset of symptoms, foods that are likely to be involved, and ways that we can prevent the foodborne illness in a foodservice operation.

While child nutrition professionals are not responsible for identifying the cause of a foodborne illness, we can prevent or eliminate a potential foodborne illness outbreak by gaining knowledge about how it is caused.

**Do:** Complete Activity 1: Identify Common Foodborne Illnesses.



**Activity 1: Identify Common Foodborne Illnesses**

**Materials needed:**

- Handouts:
    - Common Foodborne Illnesses—Symptoms and Prevention
    - Scenarios: Common Foodborne Illnesses
  - Pencils
1. Distribute a copy of the Handout: Common Foodborne Illnesses—Symptoms and Prevention
  2. Divide the group into eight teams and assign one scenario to each team.
  3. Ask each team to read the scenario that they were given and, based on information in the handout, identify the foodborne illness that is likely to have occurred.



4. Ask a spokesperson from each team to read their scenario aloud to the entire group, indicating what foodborne illness they think might be the cause and their rationale for selecting that illness.
5. If participants have answered incorrectly, use the Potential Responses on page 162 to give correct information.

Ask participants if this scenario could happen in their school. If YES, why? If NO, why not?

**SAY:** Now let's discuss two foodborne illnesses that are caused by viruses: Gastroenteritis from noroviruses and Hepatitis A.

The symptoms of **gastroenteritis** include nausea, vomiting, diarrhea, abdominal pain, headache, and mild fever. These viruses come from the human intestinal tract and are transmitted through water or food. Symptoms begin from one to two days after the contaminated food or water is consumed, and they last for one to three days.

The foods that are most often involved include contaminated drinking water or shellfish from contaminated water. Other foods, such as raw vegetables, fresh fruits, or salads, are often contaminated by dirty hands.

**Hepatitis A** is a virus found in the human intestinal tract and urinary tract. It is also found in contaminated water. Symptoms begin with a fever and also include fatigue, headache, nausea, loss of appetite, vomiting, stomach pain, and later jaundice (yellow skin and eyes). Symptoms may be seen ten days to almost two months after the contaminated food or water is consumed.

Foods involved in a Hepatitis A outbreak have usually been contaminated by food handlers, either in processing plants or foodservice facilities. Water, ice, and most foods can be contaminated. Foods that are of particular concern are those that will not receive further cooking, such as deli meats, sandwiches,



fruit and fruit juices, milk and dairy products, raw fruits and vegetables, and salads.

Prevention practices are nearly the same for both types of viruses, and include the following:

- Practice good personal hygiene.
- Follow good handwashing procedures.
- Follow procedures for avoiding cross-contamination.
- Wash all fresh produce that will be served whole, peeled, or cooked in cold, running water.
- Use water from approved sources.
- Cook all foods to the required safe internal temperature and test with a food thermometer.

**ASK:** Are there any questions about Gastroenteritis from noroviruses and Hepatitis A?

**SAY:** Another category of microorganisms that we need to be concerned about are **fungi**, which includes mold and yeast.

**Mold** can create spoilage in many products such as bread and cheese. Mold can grow in almost any condition: moist, dry, acidic, non-acidic, salty, sweet, cold, and warm. The toxins produced by molds can be dangerous to humans. These toxins have been linked to cancer in animals and to rare, isolated incidents of foodborne illness. Some molds can cause serious infection and allergies. Aflatoxin, which is produced by two specific molds, can cause liver disease.

If you have food that has mold on it, it should be discarded (unless it is part of the natural food, such as brie, camembert, gorgonzola, or blue cheese). Never just cut away the mold because toxins can permeate the food even though they are not visible to the eye.

**Yeast** loves sugar, and is associated with jellies, honey, syrup, and fruit juices. Yeast causes food to spoil, leaving evidence of



bubbles and an alcoholic smell or taste. If you detect any of these signs, food should be discarded. An example of a situation where yeast might develop is when peaches on a salad bar are mixed with a new can of peaches.

**ASK:** Are there any questions about fungi?

**SAY:** Finally, **parasites** can cause foodborne illness. There are three main illnesses: Cyclosporiasis, Giardiasis, and Trichinosis.

**Cyclosporiasis** is caused by a tiny parasite that may be in contaminated water, or it may be in or on anything that has touched the stool of a person or animal with Cyclosporiasis. Recent outbreaks have involved berries from outside the United States, mixed lettuce products, and fresh herbs.

**Giardiasis** is caused by a microscopic parasite that may be in contaminated water or in or on anything that has touched the stool of a person or animal with Giardiasis. Adults and children in daycare centers are at risk.

**Trichinosis** looks like a small, hairy, round worm. It is associated with undercooked pork or pork sausages and may occur by contamination with meat grinders.

To prevent parasites, the following practices should be followed.

- Practice good personal hygiene.
- Follow proper hand washing procedures.
- Use water from approved sources.
- Wash all fresh produce.
- Use only pasteurized dairy products and juices.
- Cook foods to proper internal temperatures, and test with a thermometer.
- Follow practices that minimize cross-contamination.

**ASK:** Are there any questions about parasites?

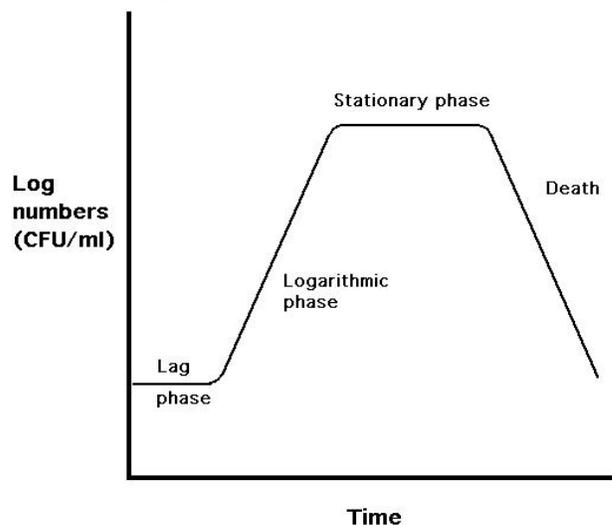


**Objective 3: Describe factors that support growth of bacteria. (30 minutes)**

**SAY:** Bacteria grow and reproduce in four stages:

1. Phase 1—The **lag phase** occurs when a food first gets contaminated with a bacteria. The bacteria needs some time to adjust.
2. Phase 2—The **log phase** is when the bacteria's growth requirements are met and they multiply rapidly.
3. Phase 3—The **stationary phase** occurs when conditions are no longer favorable to growth. The number of bacteria that die are equal to the number that grows.
4. Phase 4—The **death phase** occurs when more bacteria are dying than are growing.

**Do:** Draw the bacteria growth curve on a piece of flip chart paper, showing each of the phases.



**Hypothetical bacterial growth curve.**

Source: <http://www.foodsci.uoguelph.ca/deicon/bacgrowth.html>

**SAY:** There are several factors that influence the growth of microorganisms. Sometimes we have control over these factors and sometimes we have no control. We are going to play a game to become familiar with these factors.

**Do:** Complete Activity 2: Factors that Support Bacterial Growth.



## Activity 2: Factors that Support Bacterial Growth

### Materials needed

- Flip chart paper (two tablets or 12 sheets)
  - Easels (two, or tape sheets of chart paper on the wall)
  - Painter's tape (one roll)
  - Markers (one for each group)
  - Basket (or envelope) with six small sheets of paper folded. Each sheet will have one of the following words written on it: food, acidity, temperature, time, oxygen, or moisture.
  - Small prize (optional)
1. Divide the participants into two teams. (Note to trainer: More teams can be used for larger groups.)
  2. Tell participants that there will be a contest between the teams (or among teams if more than 12 individuals participate). One person from each team will pull out a word that is a factor that impacts growth of microorganisms from a container. That person will draw a picture to depict the factor, and other group members will guess the factor.
  3. Number the participants from one to six.
  4. Ask both number ones from each team to come to the front of the room, and one participant will draw a word from the basket. Both participants will look at the word. (**Note to trainer:** If you think it is confusing to participants, you could draw the first word to demonstrate how the game is played.)
  5. Time will be given and both players will begin drawing.
  6. The first team to identify the factor will be awarded one point.
  7. Once the factor has been identified, ask the participants to write the name of the factor at the top of the chart paper (food, acidity, temperature, time, oxygen, moisture) and post in front of the room.

At the end, the winning team could be awarded a small prize, if desired.



**SAY:** Let's talk about each of the factors that you have identified. The first factor is **food**.

**DO:** Refer to the **food** "art" on the wall (participants' drawings).

**SAY:** Food is important because it provides the proteins and carbohydrates that bacteria need to grow. Just like people need nutrients, so do bacteria.

The second factor is **acidity**.

**DO:** Refer to the **acidity** "art" on the wall.

**SAY:** At the proper acidity level, bacteria can grow rapidly. You may have heard the term pH. pH is how acidity is measured. At neutral pH, between 4.6 and 7.0, bacteria will thrive. In environments of high acidity (pH below 4.6), bacteria do not grow well. In alkaline environments (pH between 7.0 and 9.0) bacteria can survive, although they do not grow rapidly.

Generally, we can do little to control the acidity of a food. However, in manufacturing, ingredients such as citric acid are added to create a more acidic food.

The third factor is **temperature**.

**DO:** Refer to the **temperature** "art" on the wall.

**SAY:** Temperature is a very important factor for bacterial growth, and one that we can control in a foodservice operation. Bacteria grow very rapidly when they are in a nice, warm environment.

**ASK:** What is the temperature range that bacteria like best?

**DO:** Pause to allow time for participants to respond.

**SAY:** We have talked before about the Temperature Danger Zone which is the temperature range in which bacteria grow rapidly. The temperature danger zone is 41 °F-135 °F. Because bacteria grow so quickly in the temperature danger zone, we emphasize the need to keep food out of the temperature danger zone as much as possible.

**ASK:** What are some ways that we control temperature?



**Do:** Pause to allow time for participants to respond.

**SAY:** We emphasize the need to keep food out of the temperature danger zone during each step of foodservice process.

**Receiving:** Receive cold foods below 41 °F.

**Storing:** Store cold foods below 41 °F.

**Preparing:** Batch preparation limits time food is held at room temperature. Pre-cool ingredients for cold foods, such as salads.

**Cooking:** Cook to proper internal temperature. Batch cook to reduce holding time.

**Serving:** Serve cold foods at 41 °F or below. Serve hot foods at 135 °F or above.

**Cooling:** Cool food from 135 °F to 70 °F in 2 hours or less; then cool food from 70 °F to 41 °F in an additional 4 hours.

**Reheating:** Reheat food to 165 °F for 15 seconds within 2 hours.

Even though most bacteria grow well in the temperature danger zone, some can grow quickly at colder temperatures. We talked about *Listeria monocytogenes* earlier. These bacteria can grow between 32 °F and 45 °F.

The fourth factor is **time**.

**Do:** Refer to the **time** “art” on the wall.

**SAY:** We talk about time when we talk about temperature because the two are closely related. When we talked about temperature, I often mentioned times too. For example, reheat food to 165 °F for 15 seconds or cook hamburger patties for 155 °F for 15 seconds, or cool food from 135 °F to 70 °F in 2 hours or less. It is important to minimize the time that food is in the temperature danger zone and you want to make sure that the heat processing is adequate enough to kill bacteria.

The fifth factor is **oxygen**.

**Do:** Refer to the **oxygen** “art” on the wall.



**SAY:** There are two types of bacteria—aerobic and anaerobic. Aerobic bacteria need oxygen to grow and anaerobic bacteria do not need oxygen to grow. *Clostridium perfringens* and *Clostridium botulinum* are two bacteria that do not need oxygen. Remember, one of the hazardous foods for *Clostridium botulinum* was home-canned foods. Canned foods do not have oxygen, thus, bacteria can grow easily. In home canning, proper methods must be used to can the foods and ensure that the temperatures are hot enough to kill any bacteria that are in the food. That is why food is canned under pressure. By adding pressure, you increase the end-point processing temperature of a food.

The sixth and final factor is **moisture**.

**Do:** Refer to the **moisture** “art” on the wall.

**SAY:** Moisture is the last factor to support growth of bacteria. Bacteria get their nutrients from water solutions. Most fresh foods have a water content high enough to support bacterial growth.

**SAY:** Each of these six factors can be controlled in a foodservice operation, especially when we know how these factors can impact the growth of bacteria. Knowing about these factors makes it clear why we need to check time and temperature in a foodservice operation.



**Objective 4: Describe ways that foodservice employees can prevent foodborne illness. (15 minutes)**

**SAY:** Throughout this lesson, we have talked about many practices that can prevent foodborne illness. Let's generate a master list of practices that we have discussed.

**Do:** Complete Activity 3: Practices to Prevent Foodborne Illness.



**Activity 3: Practices to Prevent Foodborne Illness**

**Materials needed:**

- Flip chart paper (two tablets or 12 sheets)
  - Markers (one for each group)
  - Handout: Common Foodborne Illnesses—Symptoms and Prevention
1. Ask participants to spend 5 minutes reviewing the prevention suggestions on the handout.
  2. Ask table groups to identify practices that they implement all the time.
  3. Ask table group participants to identify practices that could be improved in their schools.
  4. Ask volunteers for 5 practices that could be improved.

**SAY:** While we are talking about practices to prevent foodborne illnesses, we need to talk about when employees should report symptoms to their supervisor. The *Food Code* states that employees should report any of the following symptoms.

- Vomiting
- Diarrhea
- Jaundice

- Sore throat with fever
- Lesions containing pus, such as a boil or infected wound that is open and draining

If an employee has any of the following illnesses that has been diagnosed by a health practitioner, it should be reported to the supervisor.

- Norovirus
- Hepatitis A virus
- *Shigella spp.*
- *Escherichia coli* O157:H7
- *Salmonella typhi*

If a foodservice employee has had an illness in the past three months due to *Salmonella typhi*, it should be reported. If an employee has been exposed to or is a suspected source of a foodborne illness, it should be reported immediately.





## Lesson Wrap Up

(5 minutes)

**ASK:** What is one practice that you can do to prevent a foodborne illness?

**SAY:** You now have a good understanding of the various foodborne illnesses that can occur. We also have identified many practices that foodservice employees can use to minimize the possibility of a foodborne illness. Most of these practices you use on a daily basis, but perhaps there are some that you need to think about doing more frequently. Hopefully, this lesson will illustrate how important those practices are for food safety.

**ASK:** Do you have any questions about anything we have learned in this lesson?

**Do:** Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find the answers and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.

**Do:** (ONLY if Lesson 3 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 68 in the *Serving It Safe Participant's Workbook*. Ask participants to take 5 minutes to complete the assessment.

When participants have completed the assessment, review the answers with the group provided on page 165.



## LESSON 3 HANDOUT

### Common Foodborne Illnesses—Symptoms and Prevention

Illness/Bacteria	Symptoms	Where the Bacteria Can Be Found	Prevention
<p><b>Botulism</b> <i>Clostridium botulinum</i></p>	<p>Symptoms begin 18-36 hours after eating contaminated food and include</p> <ul style="list-style-type: none"> <li>• diarrhea or constipation;</li> <li>• weakness;</li> <li>• dizziness;</li> <li>• double vision or blurred vision;</li> <li>• difficulty speaking, swallowing, breathing; and</li> <li>• paralysis.</li> </ul>	<ul style="list-style-type: none"> <li>• Home-canned foods</li> <li>• Improperly processed foods</li> <li>• Sausages and meats</li> <li>• Canned low-acid foods, such as some vegetables</li> <li>• Untreated garlic in oil</li> <li>• Leftover, unrefrigerated foil-wrapped baked potatoes</li> <li>• Sautéed onions in butter sauce</li> </ul>	<ul style="list-style-type: none"> <li>• Discard damaged cans.</li> <li>• Do not use home-canned foods in a foodservice establishment.</li> <li>• Do not mix and then store oil and garlic.</li> <li>• Follow rules for time and temperature control.</li> <li>• Sauté onions as needed; do not sauté and then store unrefrigerated for later use.</li> <li>• Do not store leftover baked potatoes in foil wrapping. Unwrap and cool correctly.</li> <li>• Cool foods properly.</li> </ul>
<p><b>Campylobacteriosis</b> <i>Campylobacter jejuni</i></p>	<p>Symptoms begin 2-5 days after eating contaminated food, can last 7-10 days, and include</p> <ul style="list-style-type: none"> <li>• diarrhea (watery or bloody),</li> <li>• fever,</li> <li>• nausea and</li> </ul>	<ul style="list-style-type: none"> <li>• Unpasteurized milk and dairy products</li> <li>• Raw poultry</li> <li>• Raw beef</li> <li>• Nonchlorinated or fecal-contaminated water</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> <li>• Cook all poultry, meat, and other foods to appropriate internal temperature and test</li> </ul>

	<p>vomiting,</p> <ul style="list-style-type: none"> <li>• abdominal pain,</li> <li>• headache, and</li> <li>• muscle pain.</li> </ul>	<ul style="list-style-type: none"> <li>• Birds and flies can carry and contaminate food</li> </ul>	<p>with a thermometer.</p> <ul style="list-style-type: none"> <li>• Maintain good pest control.</li> <li>• Use only pasteurized dairy products.</li> <li>• Use water from approved sources.</li> </ul>
<p><b><i>Escherichia coli</i></b> <b><i>O157:H7</i></b></p>	<p>Symptoms begin 2-5 days after eating contaminated food, can last about 8 days, and include</p> <ul style="list-style-type: none"> <li>• cramping,</li> <li>• diarrhea (watery or bloody),</li> <li>• vomiting, and</li> <li>• hemolytic uremic syndrome (hus).</li> </ul>	<ul style="list-style-type: none"> <li>• In intestinal tract of animals, particularly cattle and humans</li> <li>• Raw or undercooked ground beef</li> <li>• Raw milk or dairy products</li> <li>• Unpasteurized apple cider or juice</li> <li>• Imported cheeses</li> <li>• Dry salami</li> <li>• Uncooked fruits and vegetables</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> <li>• Cook all poultry and meat to correct internal temperature, and test with a thermometer.</li> <li>• Use only pasteurized milk, dairy products, or juices.</li> <li>• Wash all produce in cold, running water.</li> <li>• Cool foods properly.</li> </ul>
<p><b>Listeriosis</b> <i>Listeria monocytogenes</i></p>	<p>Symptoms begin 3-70 days after eating contaminated food; 21-day onset is most common. Symptoms include</p> <ul style="list-style-type: none"> <li>• sudden onset of fever,</li> </ul>	<ul style="list-style-type: none"> <li>• In soil and ground water, in plants, in intestinal tracts of humans and animals</li> <li>• Unpasteurized milk and cheese</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> <li>• Cook all poultry and meat to correct internal temperature and</li> </ul>

	<ul style="list-style-type: none"> <li>• muscle aches,</li> <li>• diarrhea or vomiting,</li> <li>• headaches,</li> <li>• stiff neck,</li> <li>• confusion,</li> <li>• loss of balance, and</li> <li>• convulsions.</li> </ul>	<ul style="list-style-type: none"> <li>• Ice cream</li> <li>• Raw vegetables</li> <li>• Raw and cooked poultry</li> <li>• Raw meat and fish</li> <li>• Prepared and cooled ready-to-eat foods</li> <li>• Deli meats, luncheon meats, hot dogs</li> <li>• Soft cheese such as feta, Brie, Mexican-style cheeses</li> </ul>	<p>test with a thermometer.</p> <ul style="list-style-type: none"> <li>• Use only pasteurized milk, dairy products, or juices.</li> <li>• Wash all fresh produce in cold, running water.</li> <li>• Clean and sanitize food contact surfaces.</li> <li>• Maintain temperatures of food.</li> </ul>
<p><b><i>Clostridium perfringens</i></b></p>	<p>Symptoms begin 8-24 hours after eating contaminated food, last 24 hours, and include</p> <ul style="list-style-type: none"> <li>• abdominal cramping and</li> <li>• diarrhea.</li> </ul>	<ul style="list-style-type: none"> <li>• In intestinal tracts of humans and animals</li> <li>• Cooked meat and poultry</li> <li>• Gravy</li> <li>• Beans</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> <li>• Cook all foods to correct internal temperature and test with a thermometer.</li> <li>• Hold food at 135 °F or above.</li> <li>• Cool foods properly.</li> </ul>
<p><b>Salmonellosis</b> <i>Salmonella spp.</i></p>	<p>Symptoms begin 8-72 hours after eating contaminated food, last 1-2 days, and include</p>	<ul style="list-style-type: none"> <li>• Raw meats and poultry</li> <li>• Milk and dairy products</li> <li>• Fish, shrimp</li> <li>• Sauces and salad</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> </ul>

	<ul style="list-style-type: none"> <li>• stomach cramps,</li> <li>• headache,</li> <li>• nausea,</li> <li>• fever,</li> <li>• diarrhea,</li> <li>• vomiting, and</li> <li>• severe dehydration (infants and elderly).</li> </ul>	<p>dressing</p> <ul style="list-style-type: none"> <li>• Cake mixes</li> <li>• Cream-filled desserts and toppings</li> <li>• Peanut butter</li> <li>• Cocoa and chocolate</li> <li>• Sliced fresh fruits and vegetables such as melons, strawberries, tomatoes</li> <li>• Raw sprouts</li> </ul>	<ul style="list-style-type: none"> <li>• Cook all foods to correct internal temperature and test with a thermometer.</li> <li>• Hold food at 135 °F or above.</li> <li>• Cool foods properly.</li> </ul>
<p><b>Shigellosis</b> <i>Shigella spp.</i></p>	<p>Symptoms begin 12-50 hours after eating contaminated food, last up to 2 weeks, and include</p> <ul style="list-style-type: none"> <li>• abdominal pain,</li> <li>• diarrhea containing blood and mucus,</li> <li>• fever,</li> <li>• nausea,</li> <li>• vomiting,</li> <li>• chills,</li> <li>• fatigue, and</li> <li>• dehydration.</li> </ul>	<ul style="list-style-type: none"> <li>• In intestinal tract of humans and polluted water; spread by flies and food handlers</li> <li>• Meat salads</li> <li>• Potato and pasta salads</li> <li>• Lettuce and other raw vegetables</li> <li>• Milk and dairy products</li> <li>• Ready-to-eat foods</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> <li>• Use water from approved sources.</li> <li>• Control flies.</li> <li>• Maintain storage temperatures.</li> <li>• Cool foods properly.</li> </ul>

<p><i>Staphylococcus aureus</i></p>	<p>Symptoms begin 1-4 hours after eating contaminated food, last 2-3 days, and include</p> <ul style="list-style-type: none"> <li>• nausea,</li> <li>• vomiting,</li> <li>• stomach cramping, and</li> <li>• exhaustion.</li> </ul>	<ul style="list-style-type: none"> <li>• Humans and animals main carriers</li> <li>• Leftovers</li> <li>• Meat and poultry</li> <li>• Eggs and egg products</li> <li>• Milk and dairy products</li> <li>• Meat and potato salads</li> <li>• Salad dressings</li> <li>• Sandwich fillings</li> </ul>	<ul style="list-style-type: none"> <li>• Practice good personal hygiene.</li> <li>• Cover burn, cut, or wound with waterproof bandage and wear disposable gloves.</li> <li>• Follow hand washing guidelines.</li> <li>• Follow procedures to avoid cross-contamination.</li> <li>• Cook all foods to correct internal temperature and test with a thermometer.</li> <li>• Hold food at 41 °F or below or at 135 °F or above.</li> <li>• Cool foods properly.</li> </ul>
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Adapted from: National Food Service Management Institute. (2009). *Serving it safe* (3rd ed.). University, MS: Author.



## **SCENARIOS**

### **Common Foodborne Illnesses**

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#### **Scenario 1**

Judy and Ashley ate lunch at a local restaurant. The fruit plate looked so good that they both ordered one. A variety of fruits were served in a cantaloupe half with the rind on. The next morning, Ashley called Judy and told her that she was not feeling well. Judy was surprised because she, too, was feeling ill with a fever, stomach cramps, and a headache. They wondered if it could have been something they ate. What do you think it could have been?

#### **Scenario 2**

The state school nutrition group met for their regional meeting at a state lodge. There was no caterer nearby, but a member knew of a caterer who lived about 75 miles away who was absolutely wonderful. The caterer prepared a large array of food items and presented a beautiful luncheon buffet. By the end of the day, nearly one-third of the participants were vomiting and feeling nauseous. As it turned out, the caterer did not have adequate transportation containers to maintain food temperatures of cold and hot food items. What type of foodborne illness would you suspect?

#### **Scenario 3**

It was cook's choice day at the local school, so she decided to clean out the freezer and use some turkey and gravy that had been cooked earlier in the school year. She made up some mashed potatoes, and served the reheated turkey and gravy over the potatoes. The next day, she got a call from the principal's office telling her that over 20 children were absent. Many of the parents' calls indicated that the children had severe diarrhea and abdominal cramps. What bacteria might be the culprit?

#### **Scenario 4**

Brenda and John attended a hamburger fry at the local park—a fundraiser for a local charity. At the time they ate their hamburgers, Brenda mentioned to John that they looked a little rare but they tasted good. Three days later, both Brenda and John were experiencing severe cramping and bloody diarrhea. What type of foodborne illness would you suspect?

#### **Scenario 5**

The state school nutrition group met for their annual meeting at a large convention hotel. They had planned a nutritious luncheon of fresh spinach salad topped with fresh oranges, grilled chicken with a mango salsa, green beans, and angel food cake with sherbet. Within 12-15 hours, nearly half the group had become ill and one elderly member was severely ill. The incident was reported to the health department. As it turned out, the employee who had prepared all of the fresh spinach salads was a carrier of bacteria that was confirmed by a fecal culture. What type of foodborne illness would this likely be?

### **Scenario 6**

Sally was cleaning out her refrigerator and found some sliced ham that she had forgotten about. She checked the “use by” date and it had expired just a couple of days ago so she thought it would be fine to use. She made herself a chef salad. She thought that the ham was a little “slick” but it tasted just fine. About two weeks later, she began to run a fever, had muscle aches, and was vomiting. She thought it was the flu. A few days later, she began to have a severe headache and was losing her balance. Her symptoms were getting worse, not better, so she decided she should visit her doctor. Based on this scenario, what foodborne illness might you suspect?

### **Scenario 7**

Susan woke up one morning feeling dizzy and weak. She had also had diarrhea for the past couple of days. She went to the doctor who suspected a foodborne illness. He asked her to tell him what she had to eat over the past several days. He became concerned when she told him that she had eaten some stew that a friend had canned last fall. What type of foodborne illness would you suspect she might have?

### **Scenario 8**

Bobby attended a cookout two days ago where his friend Tom had cooked hamburgers. Bobby likes to eat his rare, so he asked Tom to go light on the cooking and Tom was happy to oblige. Bobby awakened in the middle of the night with diarrhea. By the next morning, his diarrhea had become worse and was bloody. He had a fever and was experiencing abdominal pain and a severe headache. He thought he had the flu, but his wife was concerned about the bloody diarrhea. What type of foodborne illness would you suspect Bobby might have?

**SCENARIOS**  
**Common Foodborne Illnesses**  
**Potential Responses**



**Scenario 1**

Salmonellosis is the most likely foodborne illness.

Rationale: Symptoms are consistent with Salmonellosis (fever, stomach cramps, headache); the onset was between 6 and 48 hours; and they had eaten fresh cantaloupe that still had the rind.

**Scenario 2**

Staphylococcal is the most likely foodborne illness.

Rationale: The onset of the symptoms was rapid; symptoms are consistent with Staphylococcal poisoning; and temperature maintenance was inadequate.

**Scenario 3**

*Perfringens* is the most likely foodborne illness.

Rationale: Symptoms are consistent with *Perfringens* (severe diarrhea and abdominal cramps); the onset was between 8 and 24 hours; and the food involved was a leftover turkey and gravy product that might not have been cooled or reheated properly.

**Scenario 4**

*E. coli* 0157:H7 is the most likely foodborne illness.

Rationale: Symptoms are consistent with *E. coli* (severe cramping and bloody diarrhea); the onset was between 3 and 8 days; and individuals ate undercooked hamburger meat.

**Scenario 5**

Shigellosis is the most likely foodborne illness.

Rationale: The onset of the illness is between 12-15 hours; fresh spinach salad and fresh fruit salsa were on the menu; and a foodservice worker who prepared the salad tested positive as a carrier of a specific bacteria.

**Scenario 6**

Listeriosis is the most likely foodborne illness.

Rationale: Symptoms are consistent with listeriosis (fever, muscle aches, vomiting, severe headache, and loss of balance); the onset was within the 3-70 day time frame (and longer than for many other illnesses); and the food involved was a ready-to-eat ham product.

**Scenario 7**

Botulism is the most likely foodborne illness.

Rationale: Symptoms are consistent with botulism (dizziness and weakness); the onset was within the 18-36 hours after eating; and a home canned food was eaten.

**Scenario 8**

Campylobacteriosis is the most likely foodborne illness.

Rationale: Symptoms are consistent with campylobacteriosis (bloody diarrhea, abdominal pain, severe headache); the onset was within 2-5 days; and the individual ate raw hamburger meat.

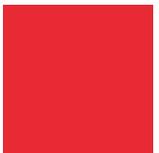
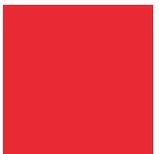
## LESSON 3: BASIC FACTS ABOUT MICROORGANISMS PRE- AND POST-LESSON ASSESSMENT

1. Bacteria that can be harmful is called
  - a. spoilage bacteria,
  - b. pathogen,
  - c. parasite, or
  - d. virus.
  
2. Which of the following actions will kill harmful bacteria?
  - a. Freezing the food for 4 hours
  - b. Heating the food at a low temperature for a long time
  - c. Keeping the food out of the temperature danger zone
  - d. Cooking the food to the required internal temperature for 15 seconds
  
3. What is the most common cause of foodborne illness?
  - a. Bacteria
  - b. Mold
  - c. Virus
  - d. Yeast
  
4. Which bacteria could cause hemolytic uremic syndrome in young children?
  - a. *Campylobacter jejuni*
  - b. *Escherichia coli* O157:H7
  - c. *Listeria monocytogenes*
  - d. *Staphylococcus aureus*
  
5. If you observe mold on food, what recommendation should you follow?
  - a. Cut away the moldy area and use the remainder of the food.
  - b. Discard the food.
  - c. Use the food in something that will be cooked.
  - d. Use the food if the mold spots are small.



## LESSON 3: BASIC FACTS ABOUT MICROORGANISMS PRE- AND POST-LESSON ASSESSMENT ANSWERS

1. Bacteria that can be harmful is called
  - a. spoilage bacteria,
  - b. pathogen,
  - c. parasite, or
  - d. virus.
  
2. Which of the following actions will kill harmful bacteria?
  - a. Freezing the food for 4 hours
  - b. Heating the food at a low temperature for a long time
  - c. Keeping the food out of the temperature danger zone
  - d. Cooking the food to the required internal temperature for 15 seconds
  
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  - a. Cut away the moldy area and use the remainder of the food.
  - b. Discard the food.
  - c. Use the food in something that will be cooked.
  - d. Use the food if the mold spots are small.



## RESOURCES AND REFERENCES

### RESOURCES

National Food Service Management Institute. (2009). *Serving it safe* (3rd ed.). University, MS: Author.

National Food Service Management Institute. (2005). *HACCP-based standard operating procedures*. University, MS: Author. Available from National Food Service Management Institute at [www.nfsmi.org](http://www.nfsmi.org)

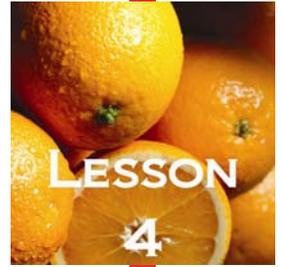
U.S. Department of Health and Human Services, Food and Drug Administration. (2005). *Food Code*. College Park, MD: Author.

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National Food Service Management Institute. (2009). *Serving it safe* (3rd ed.). University, MS: Author.

National Restaurant Association Educational Foundation. (2006). *ServSafe*® (4th ed.). Chicago: Author.

U.S. Department of Health and Human Services, Food and Drug Administration. (2005). *Food Code*. College Park, MD: Author.



## **LESSON 4: A CLEAN AND SANITARY FOODSERVICE FACILITY**

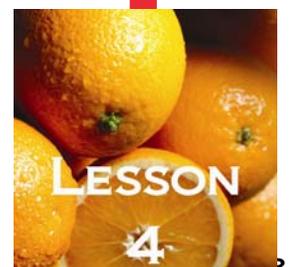
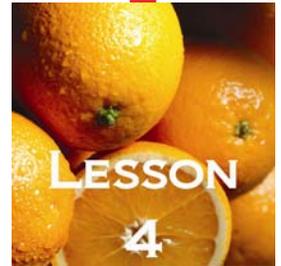
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## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for Lesson 4: A Clean and Sanitary Foodservice Facility. Keep track of your progress by checking off tasks as they are completed.

### Lesson 4 Preparation Checklist

Done	
<input checked="" type="checkbox"/>	<b>Prepare for the lesson.</b>
<input type="checkbox"/>	Carefully read the lesson plan.
<input type="checkbox"/>	Review learning activities.
<input type="checkbox"/>	Make copies of the Pre- and Post-Lesson Assessment.* <b>*Note:</b> Use only if this <i>Serving It Safe Seminar</i> lesson is taught individually. Assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
<input type="checkbox"/>	Make copies of Lesson 4 Fact Sheets.* <input type="checkbox"/> Fact Sheet: <i>Cleaning and Sanitizing</i> <input type="checkbox"/> Fact Sheet: <i>Manual Dishwashing</i> <input type="checkbox"/> Fact Sheet: <i>Mechanical Dishwashing</i> <b>*Note:</b> Fact Sheets are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
<input type="checkbox"/>	Make copies of Lesson 4 Handouts.* <input type="checkbox"/> Food Safety Checklist <input type="checkbox"/> Case Study—Pest Problems at Red Oak High School <input type="checkbox"/> USDA/NFSMI Standard Operating Procedure: <i>Cleaning and Sanitizing Food Contact Surfaces</i> <input type="checkbox"/> Food Contact Surfaces Cleaning and Sanitizing Log <input type="checkbox"/> Dish Machine Temperature Log <b>*Note:</b> Handouts are included in the <i>Serving It Safe Seminar</i>



*Participant's Workbook.* If the *Participant's Workbook* is provided to participants, copies are not necessary.

### Gather materials.

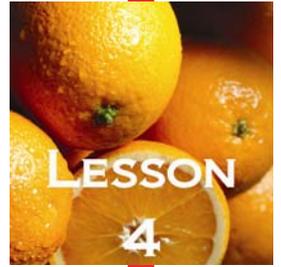
- Activity 1: Inspect Kitchen Using Food Safety Checklist (optional)**
  - Pencils
  - Handout: Food Safety Checklist
- Activity 2: Case Study—Pest Problems at Red Oak High School**
  - Pencils
  - Handout: Case Study—Pest Problems at Red Oak High School
- Activity 3: Manual Cleaning and Sanitizing**
  - Cleaning bucket (or slide showing bucket)
  - Sanitizing bucket (or slide showing bucket)
  - Chemical sanitizers (type used in your operation or demonstrate each type: chlorine, quaternary ammonium, or iodine)
  - Test Strips: chlorine, quaternary ammonium, and iodine
  - Handouts:
    - USDA/NFSMI Standard Operating Procedure: *Cleaning and Sanitizing Food Contact Surfaces*
    - Food Contact Surfaces Cleaning and Sanitizing Log
  - Fact Sheet: *Cleaning and Sanitizing*
- Activity 4: Setting Up a Three-Compartment Sink**
  - Three pieces of flip chart paper with titles: Compartment 1; Compartment 2; and Compartment 3
  - Markers
  - Painter's tape
  - Fact Sheet: *Manual Dishwashing*



- Activity 5: Checking Sanitizing Effectiveness on a Mechanical Dish Machine**
  - Waterproof maximum-registering thermometer
  - Self-adhering temperature-sensitive label
  - T-Stick®, calibrated for 160 °F
  - Student meal tray
  - Fork
  - Handout: Dish Machine Temperature Log
  - Fact Sheet: *Mechanical Dishwashing*
- Activity 6: Cleaning Large Equipment**
  - Mixer (or picture)
  - Food slicer (or picture)

**On seminar day:**

- Set up room with flip chart paper for activities.
- Place pens or pencils on tables (one for each participant).
- Place one marker on each table.
- On the instructor's table, place the following:
  - Handouts (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Fact Sheets (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Painter's tape
  - Trays with supplies
  - Pre-Lesson Assessment (if Lesson 4 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)
  - Post-Lesson Assessment (if Lesson 4 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)



## LESSON INTRODUCTION AND LEARNING OBJECTIVES

In previous lessons, we have focused on three key areas:

- employee personal hygiene,
- prevention of contamination, and
- time and temperature control.

Lesson 4 focuses on how to maintain a clean and sanitary foodservice facility to prevent contamination of food. Following this lesson, participants will be able to

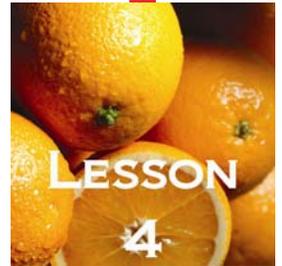
1. list characteristics of a food-safe facility;
2. describe practices that can be used to control pests in a foodservice operation;
3. demonstrate how to mix and test chemical sanitizing solutions;
4. demonstrate how to clean and sanitize;
5. describe how to set up and use a three-compartment sink;
6. demonstrate how to use mechanical dishwashers, including checking temperatures or sanitizing solution concentration; and
7. demonstrate how to clean and sanitize large equipment.

## LESSON AT-A-GLANCE

Time	Topic	Task	Materials
5 minutes	<b>Introduction and Overview</b>	<ol style="list-style-type: none"> <li>4. Introduce instructor and class participants.</li> <li>5. Introduce Lesson 4.</li> <li>6. List lesson objectives.</li> </ol>	
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 213.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
15 minutes	<b>Objective 1</b> List characteristics of a food-safe facility.	<b>Activity 1:</b> Inspect Kitchen Using Food Safety Checklist (optional)	Handout: Food Safety Checklist
15 minutes	<b>Objective 2</b> Describe practices that can be used to control pests in a foodservice operation.	<b>Activity 2:</b> Case Study—Pest Problems at Red Oak High School	Handout: Case Study—Pest Problems at Red Oak High School
15 minutes	<b>Objective 3</b> Demonstrate how to mix and test chemical sanitizing solutions.	<b>Activity 3:</b> Manual Cleaning and Sanitizing	Fact Sheet: <i>Cleaning and Sanitizing</i>  Handouts: Standard Operating Procedure: <i>Cleaning</i>

	<p><b>Objective 4</b> Demonstrate how to clean and sanitize.</p>		<p><i>and Sanitizing Food Contact Surfaces</i></p> <p>Food Contact Surfaces Cleaning and Sanitizing Log</p>
15 minutes	<p><b>Objective 5</b> Describe how to set up and use a three-compartment sink.</p>	<p><b>Activity 4:</b> Setting Up A Three-Compartment Sink</p>	<p>Fact Sheet: <i>Manual Dishwashing</i></p>
15 minutes	<p><b>Objective 6</b> Demonstrate how to use mechanical dishwashers, including checking temperatures or sanitizing solution concentration.</p>	<p><b>Activity 5:</b> Checking Sanitizing Effectiveness on a Mechanical Dish Machine</p>	<p>Fact Sheet: <i>Mechanical Dishwashing</i></p> <p>Handout: Dish Machine Temperature Log</p>
10 minutes	<p><b>Objective 7</b> Demonstrate how to clean and sanitize large equipment.</p>	<p><b>Activity 6:</b> Cleaning Large Equipment</p>	
5 minutes	<p><b>Wrap Up</b></p>		
	<p><b>Pre- and Post-Lesson Assessment</b></p> <p>Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.</p>		<p>See page 213.</p> <p>Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i>. If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.</p>

## LESSON 4: A CLEAN AND SANITARY FOODSERVICE FACILITY LESSON PLAN



### Introduction and Overview

(5 minutes)

**SAY:** It is important to make sure that foods are not contaminated at any point during the foodservice process. We have focused on three key areas:

1. employee personal hygiene,
2. prevention of contamination, and
3. time and temperature control.

Lesson 4 focuses on ways that we can maintain a clean and sanitary foodservice operation so that we can prevent contamination of food.

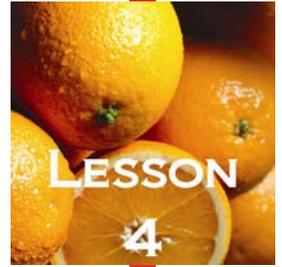
**Do:** Refer participants to the lesson objectives in the *Serving It Safe Seminar Participant's Workbook*, if provided.

**SAY:** After this lesson, you will be able to

1. list characteristics of a food-safe facility;
2. describe practices that can be used to control pests in a foodservice operation;
3. demonstrate how to mix and test chemical sanitizing solutions;
4. demonstrate how to clean and sanitize;
5. describe how to set up and use a three-compartment sink;
6. demonstrate how to use mechanical dishwashers, including checking temperatures or sanitizing solution concentration; and
7. demonstrate how to clean and sanitize large equipment.

**Do:** (ONLY if Lesson 4 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 93 in the *Serving It Safe Seminar Participant's Workbook*. Ask participants to take about 5 minutes to complete the assessment.



**Objective 1: List characteristics of a food-safe facility. (15 minutes)**

**SAY:** Let's begin this lesson by talking about what it means to have a food-safe foodservice facility—one that is clean and in good repair. The facility and the equipment must be designed for easy cleaning and maintenance. Foodservice employees must be responsible for routinely cleaning and maintaining both the facility and the equipment.

In order to identify all of the aspects of a food-safe school foodservice operation, let's inspect your foodservice operation.

**Do:** Complete Activity 1: Inspect Kitchen Using Food Safety Checklist.



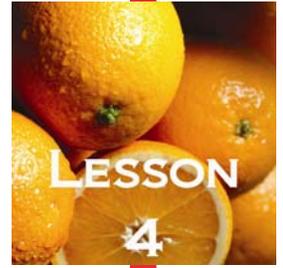
**Activity 1: Inspect Kitchen Using Food Safety Checklist**

**Materials needed:**

- Handout: Food Safety Checklist
- Pencils

1. Distribute a copy of the Food Safety Checklist to each participant. You can have participants work individually or in pairs.
2. Ask participants to use the checklist to evaluate the kitchen in which they work. If the seminar is not done on-site, eliminate this step.
3. Go through each of the 11 sections of the Food Safety Checklist and ask employees to identify areas where they think improvements could be made. Ask for suggestions about what changes could be used to improve food safety for the items identified.

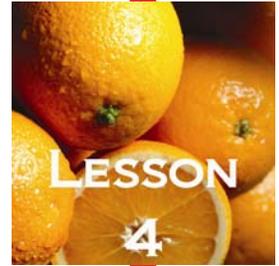
**\*Note to trainer:** If this activity is used as part of multiple seminar sessions, you may want to distribute copies to participants prior to the session in which the checklist will be discussed, and ask them to complete it prior to the seminar session.



**SAY:** We have routine inspections of our school kitchens by the state (or local) health departments. While it is important to have an external inspector visit our kitchens to identify areas we can improve, it is more important that we conduct self-inspections on a routine basis so that we can identify our own problems and make corrections in a timely manner. After all, there may be six months between formal inspections. A lot can go wrong in between those times. When the health inspector visits, we should not be surprised by any practice that is identified on the inspection report.

To promote cleanliness in a foodservice operation, it is important to maintain cleaning schedules and to have standard operating procedures for completing various cleaning tasks. By scheduling cleaning tasks and assigning responsibilities to a specific person, cleaning is more likely to be done. Some cleaning and sanitizing needs to be done daily, such as food contact surfaces, equipment, handles, etc., while other cleaning needs to be done weekly or monthly. When planning, it is important to make sure that the following areas are cleaned.

- Floors
- Walls
- Ceilings
- Ventilation systems
- Restrooms



**Objective 2: Describe practices that can be used to control pests in a foodservice operation. (15 minutes)**

**SAY:** Pest control is important to maintaining a clean and sanitary kitchen, and one in which food does not become contaminated. Cleaning and food maintenance are keys to preventing pest infestation.

**ASK:** What are some common pests in foodservice?

**DO:** Pause to allow time for participants to respond.

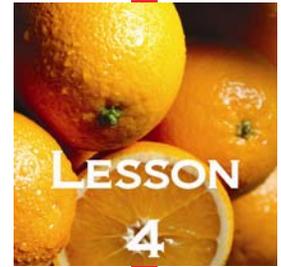
**SAY:** Yes, cockroaches, flies, and rodents are common pests. At certain times of the year, you may also see ants.

**Cockroaches** live and breed in holes, damp places, behind boxes, in seams of bags, and in folds of paper. They like dark, warm, and moist places and breed in hard-to-clean areas. Cockroaches can carry disease-causing microorganisms. Generally, cockroaches search for food at night. If you see cockroaches during the day, it may indicate a major infestation. Other signs of an infestation include

- a strong, oily odor;
- feces that look like large grains of pepper; and
- brown, dark brown, dark red, or black capsule-shaped egg cases.

**Flies** feed on waste and can carry a wide range of foodborne illnesses. They can enter a building through holes the size of a pinhead and can contaminate food with their mouth, footpads, hair, or feces. Flies are attracted to places protected from the wind and to edges of things such as garbage can rims. They lay their eggs in warm decaying material protected from sunlight and are fond of human waste areas.

**Rodents** also carry many disease-causing organisms and



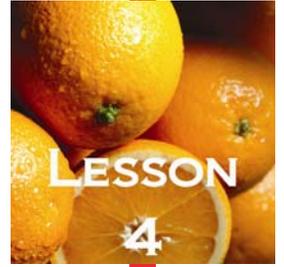
parasites. When rodents leave feces, urine, and other filth on food or surfaces, these organisms can be easily transmitted to people. Rodents are prolific breeders. They tend to hide during the day, but leave telltale signs such as

- droppings;
- gnawing;
- tracks on dusty surfaces;
- nesting materials; and
- holes in baseboards, wall board, and in other wood.

It is important to have a proactive pest control program to ensure that pests do not contaminate food. Some ways we can control pests include

- using a licensed pest control operator to implement an ongoing pest control program;
- filling any openings or cracks in walls and floors;
- filling any openings around equipment fittings or pipes;
- using screens on all windows and doors, keeping them in good shape, and making sure that they fit tightly;
- using self-closing doors that open outward;
- inspecting all food for signs of infestation before storing;
- storing food 6-8 inches off the floor and away from walls;
- removing cardboard boxes from food in dry storage (such as cardboard boxes used for shipping canned goods);
- discarding empty cardboard boxes;
- maintaining proper storage temperatures;
- cleaning grease traps to prevent drain blockage;
- installing an air door at foodservice entrances to prevent bugs from flying in; and
- painting floor (or border around room) of storage room white to make it easier to see evidence of pests.

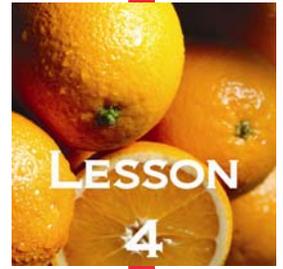
**Do:** Complete Activity 2: Case Study—Pest Problems at Red Oak High School.



## Activity 1: Case Study—Pest Problems at Red Oak High School

### Materials needed:

- Handout: Case Study—Pest Problems at Red Oak High School
  - Pencils
1. Distribute a copy of the case study.
  2. Divide participants into pairs.
  3. Allow about 5 minutes for participants to complete the case study.
  4. Discuss how each of the ten areas observed can be changed to minimize pests.



**Objective 3: Demonstrate how to mix and test chemical sanitizing solutions.** (10 minutes)

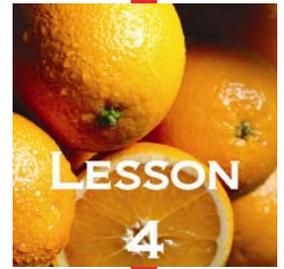
**Objective 4: Demonstrate how to clean and sanitize.** (5 minutes)

**SAY:** We have talked about the importance of cleaning and sanitizing to reduce the opportunity for bacteria and viruses to contaminate food. Now we need to talk about how to prepare chemical sanitizing solutions and how to manually clean and sanitize.

**Do:** Complete Activity 3: Manual Cleaning and Sanitizing.



## Activity 3: Manual Cleaning and Sanitizing



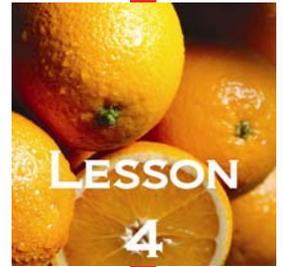
### Materials needed:

- Cleaning bucket (or slide showing example)
- Sanitizing bucket (or slide showing example)
- Chemical sanitizers: chlorine, quaternary ammonium, iodine
- Test strips (show examples of strips for chlorine, quaternary ammonium, and iodine)
- Fact Sheet: *Cleaning and Sanitizing*
- Handouts:
  - USDA/NFSMI Standard Operating Procedure: *Cleaning and Sanitizing Food Contact Surfaces*
  - Food Contact Surfaces Cleaning and Sanitizing Log

1. Talk about getting ready to clean and sanitize.
  - a. Prepare green cleaning bucket with warm, soapy water.
  - b. Prepare red sanitizing bucket with sanitizing solution.
    - i. Indicate that sanitizing solution should be mixed to the appropriate concentration.
    - ii. Tell participants that there are three approved sanitizers for foodservice: chlorine, quaternary ammonium, and iodine.
    - iii. The concentration of sanitizers is measured in parts per million (ppm). Requirements are:
      1. Chlorine—50 ppm at 75 °F
      2. Quaternary Ammonium—200 ppm at 75 °F
      3. Iodine—12.5 to 25 ppm at 75 °F
    - iv. Show test strips and demonstrate how they are used.
2. Discuss the three steps in the cleaning and sanitizing process.
  - a. Clean surfaces with warm, soapy water to remove all debris and grease film.
  - b. Rinse the surface with warm, clean water.
  - c. Sanitize the surface with sanitizing solution.



**Objective 5: Describe how to set up and use a three-compartment sink. (10 minutes)**



**SAY:** We sometimes use manual dishwashing to clean and sanitize cooking utensils, pans, and moveable equipment or equipment parts. For manual dishwashing, we use a three-compartment sink.

Some foodservice operations use a mechanical dish machine for most cleaning and sanitizing, but you will see a three-compartment sink in almost every kitchen.

**ASK:** Can you think of an important reason why we need to have a three-compartment sink, even if we use a dish machine?

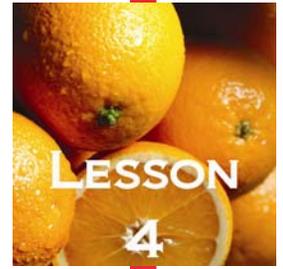
**Do:** Wait for responses from participants.

**SAY:** One of the reasons we need a three-compartment sink is for use when the dish machine is not operating properly. For example, if you check the sanitizing concentration or temperature in the dish machine and it does not meet the standard for sanitizing, you must immediately stop using it. Then, you must either use disposables or manually wash all flatware, trays, serving utensils, etc. Now, let's talk about how to set up a three-compartment sink properly.

**Do:** Complete Activity 4: Setting Up a Three-Compartment Sink.



## Activity 4: Setting Up a Three-Compartment Sink



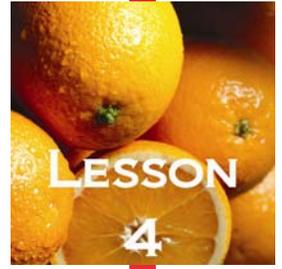
### Materials needed:

- Three pieces of chart paper with titles: Compartment 1, Compartment 2, Compartment 3
  - Markers
  - Painter's tape
  - Fact Sheet: *Manual Dishwashing*
1. Divide participants into three groups.
  2. Distribute the chart paper to the appropriate groups (i.e. group 1 gets chart paper with Compartment 1 at top, etc.)
  3. Ask each group to
    - a. identify the function of the compartment assigned, and
    - b. describe how the compartment should be set up to serve its function.
  4. Ask a representative from each group to post their “compartment” in the appropriate order and discuss key points in setting up the compartment.

### POSSIBLE RESPONSES

#### Compartment 1:

The first compartment is used for washing—so it should be set up with warm, soapy water. The water should be about 110 °F. The quantity of detergent should be based on the manufacturer's instructions. Prior to placing items in the first compartment, they should be scraped and, if possible, rinsed. If needed, pre-soak flatware and heavily soiled items. Once items are placed in the first compartment, they should be rubbed vigorously with a brush or cloth to loosen and remove any visible food particles.



### **Compartment 2:**

The function of the second compartment is rinsing. Clean, hot water (110 °F) should be placed in the second compartment and used to rinse away traces of food, debris, and detergent. The water should be changed if it gets cold or shows signs of food, debris, or detergent.

### **Compartment 3:**

The third compartment is for sanitizing. Sanitizing can be done with a chemical sanitizing solution or with hot water. The most common sanitizer used in schools is chemicals, but there are schools that use just hot water. If you use a chemical sanitizing solution, the concentration, or ppm, will be the same as we learned for sanitizing other surfaces. If you use hot water, the water should be maintained at or above 171 °F. Items should be submersed in the hot water at least 30 seconds for adequate sanitizing.

**SAY:** The water or chemicals in each compartment need to be changed when the temperature drops or if it becomes visibly dirty. Remember, we learned earlier that food debris will inactivate the sanitizer. Also, as water temperatures cool, the effectiveness of the sanitizer is reduced. Use the appropriate temperature for water—hotter is not better!

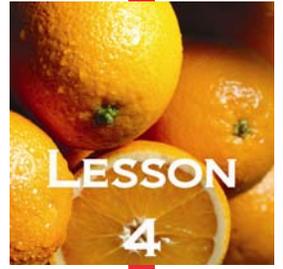
Let's review the steps for using a three-compartment sink to manually sanitize smallware:

1. Scrape and rinse items. Presoak items as needed.
2. Wash in hot (110 °F), soapy water.
3. Rinse in clean, hot water (110 °F).
4. Sanitize in very hot water (171 °F or above) or chemical sanitizing solution at appropriate concentration.
5. Air dry all items on a drain board.
6. Store items to avoid moisture retention or recontamination.

**ASK:** Why is it important to air dry all items?

**Do:** Wait for responses from participants. (Talk about the possibility of recontamination of clean and sanitized items. Cloth towels should never be used for drying.)

**Do:** Distribute Fact Sheet: *Manual Dishwashing*.





**Objective 6: Demonstrate how to use mechanical dishwashers, including checking temperatures or sanitizing solution concentration. (15 minutes)**

**SAY:** Mechanical dish machines are used in most schools for washing and sanitizing smallware, such as trays, glasses, flatware, and serving utensils. They are also often used for washing and sanitizing cooking equipment such as sheet pans, counter pans, and equipment parts.

Just as we have talked about with other cleaning and sanitizing methods, the three steps are used in a dish machine as well. (Refer to the three steps on the chart paper from Activity 4.) There are two types of dish machines: high temperature and chemical.

For high temperature dish machines, there is a wash cycle in which the water reaches 150 °F, a rinse cycle, and then a final rinse cycle that reaches 180 °F. The temperature of the final rinse water varies depending on type of dish machine and state and local public health requirements. You should check the face plate on the dish machine and follow the wash and rinse temperatures recommended on the face plate.

Chemical dish machines use a chemical sanitizing solution in the final rinse cycle. The most common sanitizer used in dish machines is chlorine. It should be at the same concentration that we discussed earlier in this lesson.

**ASK:** Do you recall the concentration?

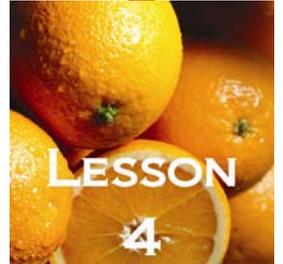
**DO:** Wait for responses from participants. (Correct answer: Chlorine—50 ppm at 75 °F)

**SAY:** It is important to check temperatures of the wash cycle and the temperatures or sanitizing solution concentration of the rinse cycle, at least at every meal period. These temperatures should be

documented each time they are taken.

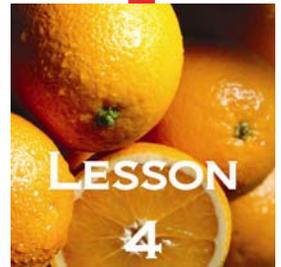
Sometimes the gauges on the dish machines are not accurate. Therefore you need to do a secondary check of temperatures. There are three methods that you can use to check temperatures: waterproof maximum-registering thermometer, self-adhering temperature-sensitive label, or T-Stick®. I will show you each type and demonstrate how they are used.

**Do:** Complete Activity 5: Checking Sanitizing Effectiveness on a Mechanical Dishwasher.





## Activity 5: Checking Sanitizing Effectiveness on a Mechanical Dishwasher



### Materials needed:

- Waterproof maximum-registering thermometer
- Self-adhering temperature-sensitive label
- T-Stick®, calibrated for 160 °F
- Student meal tray
- Fork
- Handout: Dish Machine Temperature Log
- Fact Sheet: *Mechanical Dishwashing*

1. **Show** participants a waterproof maximum-registering thermometer.

#### Discuss use.

- a. Place the waterproof maximum-registering thermometer in a rack, along with other items being washed.
- b. When you remove the thermometer, it will register the highest temperature reached.
- c. That is the temperature that you record for the rinse temperature.

2. **Show** participants a self-adhering temperature-sensitive label.

#### Discuss use.

- a. Place a label on a clean tray or other clean, flat surface. If the surface is rough, the label will not stick throughout the entire washing process.
- b. Place the item with the label in a rack with other items being washed, and run it through a complete cycle.
- c. When you remove the label, it will have turned black if the temperature reached 160 °F when the water contacted the surface. If it did not turn black, the rinse temperature was not hot enough for adequate sanitizing.

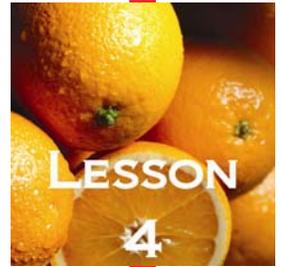
3. **Show** participants a T-Stick®.

#### Discuss use.

- a. Place the T-Stick® in the tines of a fork.



**Objective 7: Demonstrate how to clean and sanitize large equipment. (10 minutes)**



**SAY:** Equipment must be cleaned and sanitized to keep it free from harmful levels of bacteria or other contaminants. Some surfaces of equipment come into direct contact with food, such as the blades of a meat slicer, the blade of a can opener, or the attachments for a mixer. Just like other cleaning and sanitizing, it is a three-step process: wash, rinse, and sanitize.

Some equipment can be disassembled and parts can be cleaned and sanitized in a three-compartment sink or in a mechanical dish machine following procedures we discussed earlier. Other equipment has to be cleaned and sanitized in place. Let's talk about the steps used for cleaning and sanitizing equipment in place.

**Step 1:** Unplug electrical equipment.

**Step 2:** Remove any loose food particles.

**Step 3:** Wash, rinse, and sanitize any removable parts using the manual immersion method or running it through the mechanical dishwasher.

**Step 4:** Wash the remaining food contact surfaces and rinse with clean water. Wipe down with a chemical sanitizing solution that has been mixed according to manufacturer's directions.

**Step 5:** Clean surfaces that do not come in contact with food using a clean wiping cloth. Allow all parts to air dry before reassembling. Clean the wiping cloth before and during use by rinsing it in a sanitizing solution.

**Step 6:** Re-sanitize any external food contact surfaces of the parts that were handled when the equipment was reassembled.

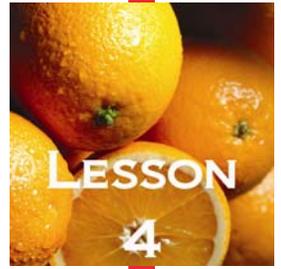
**Do:** Complete Activity 6: Cleaning Large Equipment.

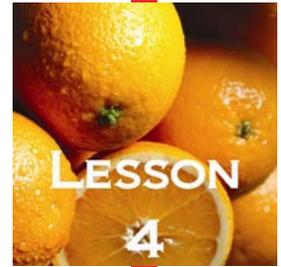


## Activity 6: Cleaning Large Equipment

### Materials needed:

- Mixer, picture of mixer, or word “mixer” on an index card
  - Food slicer, picture of a food slicer, or word “food slicer” on an index card
1. Ask for two volunteers. Assign them either a mixer or a slicer as their piece of equipment.
  2. Have the volunteer demonstrate or describe the cleaning process.
  3. Ask participants to identify any improvements that could be made.





## Lesson Wrap Up

(5 minutes)

**SAY:** Cleaning and sanitizing are critical steps in any foodservice operation.

- ASK:**
1. Do you have a cleaning schedule with assigned cleaning duties posted in your school foodservice operation?
  2. Why is routine cleaning so important in a foodservice operation?
  3. What cleaning and sanitizing tasks need to be done more frequently in your school foodservice operation?

**SAY:** In this lesson, we have talked about why and how cleaning and sanitizing should be done. While these tasks sound basic, sometimes they are not done as often as needed. Cleaning and sanitizing are basic requirements in any foodservice operation. Special attention needs to be given to implementing these practices to serve as the foundation for a food safety program.

**ASK:** Do you have any questions about anything we have learned in this lesson?

**Do:** Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find the answers and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.

**Do:** (ONLY if Lesson 4 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 93 in the *Serving It Safe Participant's Workbook*. Ask participants to take 5 minutes to complete the assessment.

When participants have completed the assessment, review the answers with the group provided on page 214.

## FOOD SAFETY CHECKLIST

Date: \_\_\_\_\_ Observer: \_\_\_\_\_

**Directions:** Use this checklist daily. Determine areas in your operations requiring corrective action. Record corrective action taken and keep completed records in a notebook for future reference.

<b>PERSONAL HYGIENE</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Employees wear clean and proper uniforms including shoes.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Effective hair restraints are worn properly.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Fingernails are short, unpolished, and clean (no artificial nails).	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Jewelry is limited to a plain ring, such as wedding band, a watch, and no bracelets.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Hands are washed properly, frequently, and at appropriate times.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Burns, wounds, sores, scabs, or splints are bandaged and completely covered with a foodservice glove.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Eating, drinking, chewing gum, smoking, or using tobacco are allowed only in designated areas.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Employees use disposable tissues when coughing or sneezing and then immediately wash hands.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Employees appear in good health.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Hand sinks are unobstructed, operational, and clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Hand sinks are stocked with soap, disposable towels, and warm water.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• A hand washing reminder sign is posted.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Employee restrooms are operational and clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____

<b>FOOD PREPARATION</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• All food stored or prepared in the facility is from approved sources.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Food equipment, utensils, and food contact surfaces are properly washed, rinsed, and sanitized before every use.	<input type="checkbox"/>	<input type="checkbox"/>	_____

- Frozen food is thawed under refrigeration, in cold running water, or cooked to proper temperature from frozen state.   \_\_\_\_\_
- Thawed food is not refrozen.   \_\_\_\_\_
- Preparation is planned so ingredients are kept out of the temperature danger zone to the extent possible.   \_\_\_\_\_
- Food is tasted using the proper procedure.   \_\_\_\_\_
- Procedures are in place to prevent cross-contamination.   \_\_\_\_\_
- Food is handled with suitable utensils, such as single-use gloves or tongs.   \_\_\_\_\_
- Food is prepared in small batches to limit the time it is in the temperature danger zone.   \_\_\_\_\_
- Clean, reusable towels are used only for sanitizing equipment and surfaces and not for drying hands, utensils, or floor.   \_\_\_\_\_
- Food is cooked to the required safe internal temperature for the appropriate time and is tested with a calibrated food thermometer.   \_\_\_\_\_
- The internal temperature of food being cooked is monitored and documented.   \_\_\_\_\_

**HOT HOLDING**

- |  | <b>Yes</b>               | <b>No</b>                | <b>Corrective Action</b> |
|--|--------------------------|--------------------------|--------------------------|
| • Hot holding unit is clean.   | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Food is heated to the required safe internal temperature before placed in hot holding. | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Hot holding units are not used to reheat potentially hazardous foods.                  | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Hot holding unit is pre-heated before hot food is placed in unit.                      | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Temperature of hot food being held is at or above 135 °F.                              | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Food is protected from contamination.  | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |

**COLD HOLDING**

- |   | <b>Yes</b>               | <b>No</b>                | <b>Corrective Action</b> |
|---|--------------------------|--------------------------|--------------------------|
| • Refrigerators are kept clean and organized.               | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Temperature of cold food being held is at or below 41 °F. | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |
| • Food is protected from contamination.                     | <input type="checkbox"/> | <input type="checkbox"/> | _____                    |

<b>REFRIGERATOR, FREEZER, AND MILK COOLER</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Thermometers are available and accurate.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Temperature is appropriate for pieces of equipment.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Food is stored 6-8 inches off floor or in walk-in cooling equipment.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Refrigerator and freezer units are clean and neat.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Proper cooling procedures are used.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• All food is properly wrapped, labeled, and dated.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• The FIFO (First In, First Out) method of inventory management is used.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Ambient air temperature of all refrigerators and freezers is monitored and documented at the beginning and end of each shift.	<input type="checkbox"/>	<input type="checkbox"/>	_____

<b>FOOD STORAGE AND DRY STORAGE</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Temperature of dry storage area is between 50 °F and 70 °F or state public health department requirement.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• All food and paper supplies are stored 6 to 8 inches off the floor.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• All food is labeled with name and received date.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Open bags of food are stored in containers with tight fitting lids and labeled with common name.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• The FIFO (First In, First Out) method of inventory management is used.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• There are no bulging or leaking canned goods.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Food is protected from contamination.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• All food surfaces are clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Chemicals are clearly labeled and stored away from food and food-related supplies.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• There is a regular cleaning schedule for all food surfaces.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Food is stored in original container or a food grade container.	<input type="checkbox"/>	<input type="checkbox"/>	_____

<b>CLEANING AND SANITIZING</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Three-compartment sink is properly set up for ware washing.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Dish machine is working properly (gauges and chemicals are at recommended levels).	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Water is clean and free of grease and food particles.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Water temperatures are correct for washing and rinsing.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• If heat sanitizing, the utensils are allowed to remain immersed in 171 °F water for 30 seconds.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• If using a chemical sanitizer, it is mixed correctly and a sanitizer strip is used to test chemical concentration.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Smallware and utensils are allowed to air dry.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Wiping cloths are stored in sanitizing solution while in use.	<input type="checkbox"/>	<input type="checkbox"/>	_____

<b>UTENSILS AND EQUIPMENT</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• All small equipment and utensils, including cutting boards and knives, are cleaned and sanitized between uses.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Small equipment and utensils are washed, sanitized, and air-dried.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Work surfaces and utensils are clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Work surfaces are cleaned and sanitized between uses.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Thermometers are cleaned and sanitized after each use.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Thermometers are calibrated on a routine basis.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Can opener is clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Drawers and racks are clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Clean utensils are handled in a manner to prevent contamination of areas that will be in direct contact with food or a person's mouth.	<input type="checkbox"/>	<input type="checkbox"/>	_____

<b>LARGE EQUIPMENT</b>	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Food slicer is clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Food slicer is broken down, cleaned, and sanitized before and after every use.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Boxes, containers, and recyclables are removed from site.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Loading dock and area around dumpsters are clean and odor-free.	<input type="checkbox"/>	<input type="checkbox"/>	_____

- Exhaust hood and filters are clean.   \_\_\_\_\_

**GARBAGE STORAGE AND DISPOSAL**

	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Kitchen garbage cans are clean and kept covered.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Garbage cans are emptied as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Boxes and containers are removed from site.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Loading dock and area around dumpster are clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• Dumpsters are clean.	<input type="checkbox"/>	<input type="checkbox"/>	_____

**PEST CONTROL**

	<b>Yes</b>	<b>No</b>	<b>Corrective Action</b>
• Outside doors have screens, are well-sealed, and are equipped with self-closing devices.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• No evidence of pests is present.	<input type="checkbox"/>	<input type="checkbox"/>	_____
• There is a regular schedule of pest control by a licensed pest control operator.	<input type="checkbox"/>	<input type="checkbox"/>	_____

## LESSON 4, ACTIVITY 2

### Case Study—Pest Problems at Red Oak High School



Jim began the new school year at Red Oak High School after several years as manager at another school in the district. The week before school started, Jim noticed evidence of pests, including cockroaches and flies. Although the school had been closed for the summer, Jim found out from the principal that the pest control company serviced the school regularly. Jim decided to make some changes to help prevent infestations. Jim first walked around the kitchen to observe where and why pests were in the kitchen. Jim's observations are listed below.

**Directions:** In the right column, write the change that should be made in order to have a more effective pest control program.

Jim's Observations	Changes to Be Made
1. Fan at the back door does not work.	
2. Unscreened back door does not fit securely when closed.	
3. One bag of rice in the storeroom is broken at the bottom and has spilled.	
4. Cases of cans are stored in cardboard cartons.	
5. Pipes from steam-jacketed kettle have space around them.	
6. Garbage cans are not covered at any time of the day.	
7. Loading dock is clean in the middle but the sides are dirty.	
8. Bins of flour and sugar were left half-full over the summer.	
9. The grease trap had not been cleaned and the three-compartment sink drain had overflowed. The overflow had dried during the summer, and an unpleasant odor was obvious.	
10. Material Safety Data Sheets (MSDS) were not available for the cleaning chemicals used in the kitchen.	

## LESSON 4, ACTIVITY 2

### Case Study—Pest Problems at Red Oak High School (Suggested Answers)



- 1. Observation:** Fan at the back door does not work.  
**Change:** *Have it repaired. In the meantime, keep door closed.*
- 2. Observation:** Unscreened back door does not fit securely when closed.  
**Change:** *Have maintenance check the door and make it more secure. Flies and other pests can enter in very small spaces.*
- 3. Observation:** One bag of rice in the storeroom is broken at the bottom and has spilled.  
**Change:** *Clean up rice and discard the bag since a rat or mouse may have chewed it. Store all food and supplies 6-8 inches off the floor on pallets.*
- 4. Observation:** Cases of cans are stored in cardboard cartons.  
**Change:** *Remove the cans from the cases and record the arrival date on the cans. If necessary, keep a portion of the case for reference numbers.*
- 5. Observation:** Pipes from steam-jacketed kettle have space around them.  
**Change:** *Have maintenance fill openings around pipes to prevent entry by pests.*
- 6. Observation:** Garbage cans are not covered at any time of the day.  
**Change:** *Follow state and local public health department guidelines; keep garbage cans covered as much as possible.*
- 7. Observation:** Loading dock is clean in the middle but the sides are dirty.  
**Change:** *Have the loading dock completely cleaned, and then begin a routine cleaning program of that area.*
- 8. Observation:** Bins of flour and sugar were left half-full over the summer.  
**Change:** *Bins should have been emptied, cleaned, and sanitized for the summer. Food left in the bins should be discarded and the bins cleaned and sanitized.*
- 9. Observation:** The grease trap had not been cleaned and the three-compartment sink drain had overflowed. The overflow had dried during the summer, and an unpleasant odor was obvious.  
**Change:** *All grease traps should be cleaned on a regular basis to prevent grease build up.*
- 10. Observation:** Material Safety Data Sheets (MSDS) were not available for the cleaning chemicals used in the kitchen.  
**Change:** *Contact the employee who purchases the chemicals and obtain a copy of the MSDS for each chemical used. All employees should be properly taught about the procedure for using chemicals and where the MSDS are located.*

## CLEANING AND SANITIZING FOOD CONTACT SURFACES

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that all food contact surfaces are properly cleaned and sanitized

**Scope:** This procedure applies to foodservice employees involved in cleaning and sanitizing food contact surfaces.

**Key words:** Food contact surface, cleaning, sanitizing

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow manufacturer's instructions regarding the use and maintenance of equipment and use of chemicals for cleaning and sanitizing food contact surfaces. Refer to the NFSMI SOP: Storing and Using Poisonous or Toxic Chemicals.
4. If state or local requirements are based on the *Food Code*, wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment
  - before each use;
  - between uses when preparing different types of raw animal foods, such as eggs, fish, meat, and poultry;
  - between uses when preparing ready-to-eat foods and raw animal foods, such as eggs, fish, meat, and poultry; and
  - any time contamination occurs or is suspected.
5. Wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment using the following procedure.
  1. Wash surface with detergent solution.
  2. Rinse surface with clean water.
  3. Sanitize surface using a sanitizing solution mixed at a concentration specified on the manufacturer's label.
  4. Place wet items in a manner to allow them to air dry.

6. If a three-compartment sink is used, set up and use the sink in the following manner.
  1. In the first compartment, wash with a clean detergent solution at or above 110 °F or at the temperature specified by the detergent manufacturer.
  2. In the second compartment, rinse with clean water.
  3. In the third compartment, sanitize with a sanitizing solution mixed at a concentration specified on the manufacturer's label or by immersing in hot water at or above 171 °F for 30 seconds. Test the chemical sanitizer concentration by using an appropriate test kit.
7. If a dish machine is used, follow the guidelines below.
  - Check with the dish machine manufacturer to verify that the information on the data plate is correct.
  - Refer to the information on the data plate for determining wash, rinse, and sanitization (final) rinse temperatures; sanitizing solution concentrations; and water pressures, if applicable.
  - Follow manufacturer's instructions for use.
  - Ensure that food contact surfaces reach a surface temperature of 160 °F or above if using hot water to sanitize.

**Monitoring:**

Foodservice employees will monitor all areas of cleaning and sanitizing.

1. During all hours of operation, visually and physically inspect food contact surfaces of equipment and utensils to ensure that the surfaces are clean.
2. Monitor a three-compartment sink on a daily basis.
  - Visually monitor that the water in each compartment is clean.
  - Take the water temperature in the first compartment of the sink by using a calibrated thermometer.
  - If using chemicals to sanitize, test the sanitizer concentration by using the appropriate test kit for the chemical.
  - If using hot water to sanitize, use a calibrated thermometer to measure the water temperature. Refer to the NFSMI SOP: Using and Calibrating Thermometers.

**3. Monitor a dish machine on a daily basis.**

- Visually monitor that the water and the interior parts of the machine are clean and free of debris.
- Continually monitor the temperature and pressure gauges. If applicable, ensure that the machine is operating according to the data plate.
- For a hot water sanitizing dish machine, ensure that food contact surfaces are reaching the appropriate temperature by placing a piece of heat sensitive tape on a smallware item or a maximum registering thermometer on a rack and running the item or rack through the dish machine.
- For chemical sanitizing dish machine, check the sanitizer concentration on a recently washed food-contact surface using an appropriate test kit.

**Corrective Action:**

- 1. Retrain any foodservice employee found not following the procedures in this SOP.**
- 2. Wash, rinse, and sanitize dirty food contact surfaces. Sanitize food contact surfaces if it is discovered that the surfaces were not properly sanitized. Discard food that comes in contact with food contact surfaces that have not been sanitized properly.**
- 3. Implement corrective actions for a three-compartment sink.**
  - Drain and refill compartments periodically and as needed to keep the water clean.
  - Adjust the water temperature by adding hot water until the desired temperature is reached.
  - Add more sanitizer or water, as appropriate, until the proper concentration is achieved.
- 4. Implement corrective actions for a dish machine.**
  - Drain and refill the machine periodically and as needed to keep the water clean.
  - Contact the appropriate individual(s) to have the machine repaired if the machine is not reaching the proper wash temperature indicated on the data plate.
  - For a hot water sanitizing dish machine, retest by running the machine again. If the appropriate surface temperature is still not achieved on the second run, contact the appropriate individual(s) to have the machine repaired. Wash, rinse, and sanitize in the three-compartment sink until the

machine is repaired or use disposable single service/single-use items if a three-compartment sink is not available.

- For a chemical sanitizing dish machine, check the level of sanitizer remaining in the bulk container. Fill, if needed. “Prime” the machine according to the manufacturer’s instructions to ensure that the sanitizer is being pumped through the machine. Retest. If the proper sanitizer concentration level is not achieved, stop using the machine and contact the appropriate individual(s) to have it repaired. Use a three-compartment sink to wash, rinse, and sanitize until the machine is repaired.

**Verification and Record Keeping:**

Foodservice employees will record monitoring activities and any corrective action taken on the Food Contact Surfaces Cleaning and Sanitizing Log. The foodservice manager will verify that foodservice employees have taken the required temperatures and tested the sanitizer concentration by visually monitoring foodservice employees during the shift and reviewing, initialing, and dating the Food Contact Surfaces Cleaning and Sanitizing Log. The log will be kept on file for at least 1 year. The foodservice manager will complete the Food Safety Checklist daily. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## FOOD CONTACT SURFACES CLEANING AND SANITIZING LOG

**Instructions:** Record time, temperatures or sanitizer concentration as appropriate, and any corrective action taken on this form. The foodservice manager will verify that foodservice employees have taken the required information by visually monitoring foodservice employees and preparation procedures during the shift and by reviewing, initialing, and dating this log daily. Maintain this log for a minimum of 1 year.

Date and Time	Wash Temperature	Rinse Temperature	Final Rinse (Sanitization) Temperature	Heat Sensitive Tape (place here)	Sanitizer Concentration (in ppm)	Corrective Action	Employee Initials	Manager Initials

## DISH MACHINE TEMPERATURE LOG

**Instructions:** Record time, temperatures or sanitizer concentration as appropriate, and any corrective action taken on this form. The foodservice manager will verify that foodservice employees have taken the required information by visually monitoring foodservice employees and preparation procedures during the shift and by reviewing, initialing, and dating this log daily. Maintain this log for a minimum of 1 year.

Date and Time	Wash Temperature	Rinse Temperature	Final Rinse (Sanitization) Temperature	Heat Sensitive Tape (place here)	Sanitizer Concentration (in ppm)	Corrective Action	Employee Initials	Manager Initials

## LESSON 4: A CLEAN AND SANITARY FOODSERVICE FACILITY PRE- AND POST-LESSON ASSESSMENT

1. Which of the following practices supports pest infestation and growth in a foodservice operation?
  - a. Removing all cardboard boxes from the facility
  - b. Cleaning grease traps often
  - c. Storing food items on the floor
  - d. Installing air doors at entrances
2. A three-compartment sink should be set up and used properly. Which statement is true about using a three-compartment sink?
  - a. Set up compartments to wash, rinse, and sanitize.
  - b. Set up compartments to rinse, wash, and sanitize.
  - c. Prepare sanitizing solution daily.
  - d. Use any water temperature for mixing detergent and sanitizer.
3. What type of thermometer can be used to test final rinse temperatures?
  - a. Meat thermometer
  - b. Self-adhering temperature sensing label
  - c. T-Stick®
  - d. Bi-metallic stemmed thermometer
4. When using a chemical dish machine, which of the following statements is **true**?
  - a. Chemical solution concentrations are different than those used for manual sanitizing.
  - b. Sanitizing solution should be tested at the end of a rinse cycle.
  - c. Testing of sanitizing solution is not necessary because the dish machine is serviced routinely.
  - d. It is not necessary to document chemical sanitizer concentration.
5. Which one of the following provides important information about the safety of using a chemical?
  - a. Standard operating procedures
  - b. Training manual in school district
  - c. Material Safety Data Sheet
  - d. Cleaning schedules



## LESSON 4: A CLEAN AND SANITARY FOODSERVICE FACILITY PRE- AND POST-LESSON ASSESSMENT ANSWERS

1. Which of the following practices supports pest infestation and growth in a foodservice operation?
  - a. Removing all cardboard boxes from the facility
  - b. Cleaning grease traps often
  - c. Storing food items on the floor
  - d. Installing air doors at entrances
2. A three-compartment sink should be set up and used properly. Which statement is true about using a three compartment sink?
  - a. Set up compartments to wash, rinse, and sanitize.
  - b. Set up compartments to rinse, wash, and sanitize.
  - c. Prepare sanitizing solution daily.
  - d. Use any water temperature for mixing detergent and sanitizer.
3. What type of thermometer can be used for testing final rinse temperatures?
  - a. Waterproof, maximum registering thermometer
  - b. Self-adhering temperature sensing label
  - c. T-Stick®
  - d. Bimetallic stemmed thermometer
4. When using a chemical dish machine, which of the following statements is **true**?
  - a. Chemical solution concentrations are different than those used for manual sanitizing.
  - b. Sanitizing solution should be tested at the end of a rinse cycle.
  - c. Testing of sanitizing solution is not necessary because the dish machine is serviced routinely.
  - d. It is not necessary to document chemical sanitizer concentration.
5. Which one of the following provides important information about the safety of using a chemical?
  - a. Standard operating procedures
  - b. Training manual in school district
  - c. Material Safety Data Sheet
  - d. Cleaning schedules



## RESOURCES AND REFERENCES

### RESOURCES

National Food Service Management Institute. (2009). *Serving it safe* (3rd ed.). University, MS: Author.

National Food Service Management Institute. (2005). *HACCP-based standard operating procedures*. University, MS: Author. Available from National Food Service Management Institute at [www.nfsmi.org](http://www.nfsmi.org)

U.S. Department of Health and Human Services, Food and Drug Administration. (2005). *Food Code*. College Park, MD: Author.

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National Restaurant Association Educational Foundation. (2006). *ServSafe*® (4th ed.). Chicago: Author.

U.S. Department of Health and Human Services, Food and Drug Administration. (2005). *Food Code*. College Park, MD: Author.



## **LESSON 5: A PROCESS FOR PREVENTING FOODBORNE ILLNESS**

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## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for Lesson 5: A Process for Preventing Foodborne Illness. Keep track of your progress by checking off tasks as they are completed.

### Lesson 5 Preparation Checklist

Done



Prepare for the lesson.

- Carefully read the lesson plan.
- Review learning activities.
- Make copies of the Pre- and Post-Lesson Assessment.\*  
**\*Note:** Use only if this *Serving It Safe Seminar* lesson is taught individually. Assessments are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.
- Make copies of Lesson 5 Fact Sheets.\*
  - Fact Sheet: *Receiving Deliveries*
  - Fact Sheet: *Storing Foods*
  - Fact Sheet: *Storing and Using Poisonous or Toxic Chemicals*
  - Fact Sheet: *Preventing Contamination During Food Preparation*
  - Fact Sheet: *Controlling Time and Temperature During Preparation*
  - Fact Sheet: *Thawing Foods*
  - Fact Sheet: *Washing Fruits and Vegetables*
  - Fact Sheet: *Cooking Foods*
  - Fact Sheet: *Holding Cold Foods*
  - Fact Sheet: *Holding Hot Foods*
  - Fact Sheet: *Serving Safe Food*
  - Fact Sheet: *Using Suitable Utensils When Handling Ready-to-Eat Foods*
  - Fact Sheet: *Preventing Contamination in Food Bars*



- Fact Sheet: *Cooling Food*
- Fact Sheet: *Reheating Foods*
- Fact Sheet: *Transporting Foods*

**\*Note:** Fact Sheets are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

- Make copies of Lesson 5 Handouts.\*
  - Evaluation Criteria for Foods at Receiving
  - Sample Invoice
  - Recipes
  - USDA/NFSMI Standard Operating Procedures:  
*Receiving Deliveries*
  - Reality Foodservice: Out of the Range—Out of the Cold
  - Reality Foodservice: Out of the Range—Hot, We're Not
  - Cooling Food* Video Viewing Guide

**\*Note:** Handouts are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

### Gather materials.

- Activity 1: Receiving Food and Supplies**
  - Pencils (one per participant)
  - Deck of cards
  - Handouts:
    - Evaluation Criteria for Foods at Receiving
    - Sample Invoice
    - USDA/NFSMI Standard Operating Procedures:  
*Receiving Deliveries*
- Activity 2: Storing Food and Supplies**
  - Large paper thermometer with hatch marks at 5 °F  
(from Lesson 1)
  - Markers



- Handout: Sample Invoice (used in Activity 1)
- Fact Sheets:
  - *Storing Foods*
  - *Storing and Using Poisonous or Toxic Chemicals*
- Activity 3: Preparing Recipes**
  - Two copies of the following USDA recipes:
    - D-14: Pasta Toss with Vegetables
    - E-01A: Molded Vegetable Salad
    - E-10: Macaroni Salad
    - E-10A: Macaroni and Ham Salad
    - E-12: Potato Salad
    - E-13: Taco Salad
    - F-10: Egg Salad Sandwich
    - F-11: Tuna Salad Sandwich
  - Two sheets of flip chart paper for each group
  - Markers
  - Fact Sheets:
    - *Preventing Contamination During Food Preparation*
    - *Controlling Time and Temperature During Preparation*
    - *Washing Fruits and Vegetables*
- Activity 4: Thawing Food**
  - Copy of Activity 4 food items, cut apart and affixed to index cards
  - Fact Sheet: *Thawing Foods*
- Activity 5: Cooking Food**
  - Four signs with the following temperatures on them (one temperature per sign): 135 °F, 145 °F, 155 °F, 165 °F
  - Fact Sheet: *Cooking Foods*
  - Index cards with one food item per card:
    - canned green beans



- frozen chicken patties
  - taco filling
  - leftover lasagna
  - frozen broccoli
  - pork roast
  - sausage
  - chicken noodle casserole
  - hamburger patties
  - ham
  - roast beef
  - sloppy Joes
  - canned corn
  - leftover chili
  - stuffed pasta shells
  - roasted turkey
- Activity 6: Reality Foodservice: Out of the Range**
- Handouts:
- Reality Foodservice: Out of the Range—Out of the Cold
  - Reality Foodservice: Out of the Range—Hot, We're Not
- Fact Sheets:
- *Holding Cold Foods*
  - *Holding Hot Foods*
- Activity 7: Training Employees on Serving Techniques**
- Flip chart paper
- Painter's tape (one roll)
- Markers (one set)
- Fact Sheets:
- *Serving Food*
  - *Using Utensils when Handling Ready-to-Eat Foods*
  - *Preventing Contamination in Food Bars*



- Activity 8: Cooling Food Video Clip from *Developing a Food Safety Program* Video**
  - DVD player and monitor **OR** computer with Internet connection and monitor
  - Developing a Food Safety Program* video
  - Handout: *Cooling Food* Video Viewing Guide
  - Fact Sheet: *Cooling Food*
- Objective 11: Describe the reheating process for food.**
  - Fact Sheet: *Reheating Foods*
- Objective 12: Describe the steps for ensuring food safety when transporting food. (optional)**
  - Fact Sheet: *Transporting Foods*

**On seminar day:**

- Set up room with flip chart paper for activities.
- Place pens or pencils on tables (one for each participant).
- Place one marker on each table.
- On the instructor's table, place the following:
  - Handouts (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Fact Sheets (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Painter's tape
  - Trays with supplies
  - Copies of recipes
  - Pre-Lesson Assessment (if Lesson 5 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)
  - Post-Lesson Assessment (if Lesson 5 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)



## LESSON INTRODUCTION AND LEARNING OBJECTIVES

Lesson 5 focuses on the process for preventing foodborne illness. It is important to follow basic food handling practices at each operational step. These operational steps include: purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, and transporting. There are safe food handling practices that need to be followed at each step, including time and temperature control; employee personal hygiene; and prevention of contamination.

Following this lesson, participants will be able to

1. describe how purchasing relates to food safety;
2. list food safety practices that should be followed when receiving food;
3. describe safe food handling practices for dry, refrigerated, and frozen storage;
4. list good food handling practices when preparing food;
5. describe safe methods for thawing frozen food;
6. list food safety guidelines for cooking foods;
7. state end-point cooking temperatures for foods often prepared in schools;
8. state appropriate holding temperatures for hot and cold foods;
9. describe food safety guidelines for serving food;
10. list steps for the safe cooling of food; and
11. describe the reheating process for food.

Optional (depending on need of participants)

12. Describe the steps for ensuring food safety when transporting food.

## LESSON AT-A-GLANCE

Time	Topic	Task	Materials
5 minutes	<b>Introduction and Overview</b>	<ol style="list-style-type: none"> <li>1. Introduce instructor and class participants.</li> <li>2. Introduce Lesson 5.</li> <li>3. List lesson objectives.</li> </ol>	
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 325.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
15 minutes	<b>Objective 1</b> Describe how purchasing relates to food safety.		
15 minutes	<b>Objective 2</b> List food safety practices that should be followed when receiving food.	<b>Activity 1: Receiving Food and Supplies</b>	Handouts: Evaluation Criteria for Foods at Receiving  Sample Invoice  USDA/NFSMI Standard Operating Procedure: <i>Receiving Deliveries</i>

15 minutes	<p><b>Objective 3</b> Describe safe food handling practices for dry, refrigerated, and frozen storage.</p>	<p><b>Activity 2:</b> Storing Food and Supplies</p>	<p>Paper thermometer</p> <p>Fact Sheet: <i>Storing Foods</i></p> <p><i>Storing and Using Poisonous or Toxic Chemicals</i></p> <p>Handout: Sample Invoice</p>
15 minutes	<p><b>Objective 4</b> List good food handling practices when preparing food.</p>	<p><b>Activity 3:</b> Preparing Recipes</p>	<p>Recipes</p> <p>Fact Sheets: <i>Preventing Contamination During Food Preparation</i></p> <p><i>Controlling Time and Temperature During Preparation</i></p> <p><i>Washing Fruits and Vegetables</i></p>
10 minutes	<p><b>Objective 5</b> Describe safe methods for thawing frozen food.</p>	<p><b>Activity 4:</b> Thawing Food</p>	<p>Fact Sheet: <i>Thawing Foods</i></p> <p>Food items on index cards</p>
15 minutes	<p><b>Objective 6</b> List food safety guidelines for cooking foods.</p> <p><b>Objective 7</b> State end-point cooking</p>	<p><b>Activity 5:</b> Cooking Food</p>	<p>Fact Sheet: <i>Cooking Foods</i></p>

		temperatures for foods often prepared in schools.	
15 minutes	<b>Objective 8</b> State appropriate holding temperatures for hot and cold foods.	<b>Activity 6:</b> Reality Foodservice: Out of the Range	Handout: Reality Foodservice: Out of the Range—Out of the Cold  Reality Foodservice: Out of the Range—Hot, We're Not  Fact Sheets: <i>Holding Cold Foods</i>  <i>Holding Hot Foods</i>
15 minutes	<b>Objective 9</b> Describe food safety guidelines for serving food.	<b>Activity 7:</b> Training Employees on Serving Techniques	Fact Sheets: <i>Serving Food</i>  <i>Using Utensils when Handling Ready-to-Eat Foods</i>  <i>Preventing Contamination in Food Bars</i>
15 minutes	<b>Objective 10</b> List steps for the safe cooling of food.	<b>Activity 8:</b> <i>Cooling Food</i> Video Clip	Handout: <i>Cooling Food</i> Video Viewing Guide  Fact Sheet: <i>Cooling Food</i>
5 minutes	<b>Objective 11</b> Describe the reheating process		Fact Sheet: <i>Reheating Foods</i>

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	for food.	
10 minutes	<b>Objective 12</b> (optional) Describe the steps for ensuring food safety when transporting food.	Fact Sheet: <i>Transporting Foods</i>
5 minutes	<b>Wrap Up</b> <b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.	See page 325.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.

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## LESSON 5: A PROCESS FOR PREVENTING FOODBORNE ILLNESS LESSON PLAN



### Introduction and Overview

(5 minutes)

**SAY:** Lesson 5 focuses on the process for preventing foodborne illness. It is important to follow basic food handling practices at each operational step in the foodservice process. These operational steps include purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, and transporting. Basic food handling practices needed at each step include time and temperature control; employee personal hygiene; and prevention of contamination. In this lesson, you will be asked to analyze each step of the foodservice process and apply principles that you have learned in previous lessons.

Let's begin this lesson by talking about using standard practices at each step of the foodservice process, how we monitor those standard practices, and how we take corrective actions if the standard practices are not being followed. The process of taking corrective actions is an important key to any food safety program.

**Do:** Refer participants to the lesson objectives in the *Serving It Safe Seminar Participant's Workbook*, if provided.

**SAY:** After this lesson, you will be able to

1. describe how purchasing relates to food safety;
2. list food safety practices that should be followed when receiving food;
3. describe safe food handling practices for dry, refrigerated, and frozen storage;
4. list good food handling practices when preparing food;
5. describe safe methods for thawing frozen food;
6. list food safety guidelines for cooking foods;
7. state end-point cooking temperatures for foods often



- prepared in schools;
8. state appropriate holding temperatures for hot and cold foods;
  9. describe food safety guidelines for serving food;
  10. list steps for the safe cooling of food; and
  11. describe the reheating process for food.

Optional (depending on need of participants)

12. Describe the steps for ensuring food safety when transporting food.

**Do:** (ONLY if Lesson 5 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 161 in the *Serving It Safe Seminar Participant's Workbook*. Ask participants to take about 5 minutes to complete the assessment.



**Objective 1: Describe how purchasing relates to food safety. (15 minutes)**

**SAY:** Now we are ready to review the steps of the foodservice process.

**Do:** Place the *Serving It Safe* poster on the wall.

**SAY:** The first step of the foodservice process is purchasing followed by receiving, storing, preparing, cooking, serving and holding, cooling, and reheating. We will talk about each of these steps as we progress through Lesson 5. We'll also include one additional step, transporting food.

Let's talk about purchasing (the first step). The goal of purchasing is to obtain safe and wholesome food to meet the menu requirements of a foodservice operation. The person responsible for purchasing has to select vendors who maintain high standards for food safety. In purchasing, both the vendors and the purchasers share responsibility for food safety.

**ASK:** Can you think about some responsibilities that are important for the individual who does the purchasing for the foodservice operation?

**Do:** Listen for responses. Summarize, making sure that the following points are made.

**SAY:** You brought up some important responsibilities. In addition to what you have mentioned, the purchaser must also

- work with vendors to establish an appropriate food delivery schedule for each school;
- tell vendors what performance is expected;
- request a copy of vendors' standardized procedures for sanitation or a letter documenting that the vendor follows a hazard analysis critical control point (HACCP) program or good manufacturing practices;



- include food safety standards in purchase specifications, such as the requirement for the vendor to follow HACCP or good manufacturing practices;
- request a copy of vendors' most recent health inspection report;
- inform vendor that the purchaser will make unannounced sanitation inspections of truck;
- visit vendors' warehouses periodically to check on cleanliness; and
- reject all products that do not meet requirements established for the foodservice operation.

Decisions are made at the point of purchasing about the form in which food will be purchased—decisions that can impact food handling in the foodservice operation. For example, a decision might be made to purchase precooked meats so that raw meat does not come into the operation. Or, a decision might be made not to purchase high risk foods, such as sprouts or melons.

Based on our discussion of purchaser's responsibilities, some of the vendor's responsibilities are evident.

**ASK:** What do you think are important responsibilities of vendors to ensure food safety?

**DO:** Listen for responses. Summarize, making sure that the following points are made.

**SAY:** You have identified several important responsibilities for vendors who sell food and supplies to a foodservice operation. It is important for vendors to

- meet all federal and state health standards;
- follow standardized operating procedures for food safety;
- train employees in sanitation;



- have clean delivery trucks with adequate refrigeration;
- deliver foods in clean containers (for example, milk crates should be free of visible soil);
- deliver foods packaged in protective, leak-proof, and durable packaging;
- deliver foods at the correct temperatures;
- organize foods to separate raw products from processed foods and produce; and
- provide written documentation about their food safety program, and how to handle returns and food recalls.



**Objective 2: List food safety practices that should be followed when receiving food. (15 minutes)**

**SAY:** After food and supplies are purchased, they are delivered to the foodservice operation by the vendor and received by foodservice employees. The goals of receiving are to make sure that foods are fresh and safe when they are delivered to the operation and to transfer foods to proper storage areas as quickly as possible upon delivery. The employee who receives a food delivery is responsible for monitoring the quality and safety of the foods that are accepted, and that employee must be trained on how to receive deliveries. There are some basic guidelines for receiving that all employees should know.

First, the receiving area should be organized and appropriate for receiving. That includes

- making sure that the receiving area is clean and free of boxes or other items that might encourage pests;
- making sure that the receiving area is well lit; and
- having the correct equipment and supplies, including
  - pen and hard writing surface such as a clip board,
  - food thermometer for checking temperatures,
  - receiving form for documenting temperatures (or, this may be done directly on the invoice), and
  - clean cart or hand truck for transporting goods from the receiving area to storage.

Second, the delivery truck should be checked to make sure that it looks and smells clean and is at the appropriate temperature.

Finally, food and supplies should be inspected when they are delivered to make sure that they are of the quality ordered and delivered in good condition. When checking food items, we want to make sure that



- foods meet delivery temperature, food specification, and quality requirements;
- foods are within the expiration date—especially items such as milk, eggs, and other perishable items;
- foods are in airtight, moisture-proof packaging;
- frozen foods show no signs of thawing and refreezing, which might include large ice crystals, solid areas of ice, excessive ice in containers, or wet looking spots on cardboard packaging;
- canned foods show no signs of deterioration, such as swollen sides or ends, flawed seals or seams, dents, or rust;
- packaged foods are not damaged and do not show signs of insect infestation; and
- dairy, bakery, and other foods are delivered in clean flats or crates.

If there are any problems noted with the criteria we have just discussed, the person doing the receiving needs to reject the item, mark that on the invoice, and notify the foodservice supervisor.

**Do:** Complete Activity 1: Receiving Food and Supplies.



## Activity 1: Receiving Food and Supplies

### Materials needed:

- Deck of cards
- Pencils
- Handouts:
  - Evaluation Criteria for Foods at Receiving
  - Sample Invoice
  - USDA/NFSMI Standard Operating Procedure:  
*Receiving Deliveries*



1. Before the lesson, take a deck of cards and separate it into the four suits: spades, hearts, diamonds, and clubs. Arrange the cards from high to low (ace, king, queen, jack, ten, nine, eight, seven, six, five, four, three, and two). Make two sets of pairs. (Match the ace of spades with the ace of hearts and through the suit. Do the same for the diamonds and clubs.) Take out the number of pairs so that each participant can be given one card. For example, if there are 30 participants, you will need 15 pairs of cards. Use the pairs from the spade/heart suits and the pairs from the diamonds/clubs suits. Shuffle the cards and randomly “deal” one card to each participant.
2. Distribute a copy of the two handouts for the activity: *Evaluation Criteria for Foods at Receiving* and *Sample Invoice*.
3. Divide participants into pairs. To determine pairs, have them match pairs of spades/hearts and diamonds/clubs.
4. Assign each pair one item from the sample invoice. Ask the pair to discuss how they would evaluate that product upon receiving and what receiving steps they would follow for the item.
5. Have each pair present their evaluation and receiving steps. Ask pairs to present in the order of their cards: aces first, kings second, etc.
6. Ask participants to hold onto their cards for use in a later activity.

**Do:** Distribute Handout: USDA/NFSMI Standard Operating Procedure: *Receiving Deliveries*.

**Objective 3: Describe safe food handling practices for dry, refrigerated, and frozen storage. (15 minutes)**



**Do:** Refer to the “Storing” step on the *Serving It Safe* poster.

**SAY:** Now that deliveries have been received, the next step is storing. The goal of storing is to maintain food and supplies in conditions that will ensure their safety, quality, and shelf life. With storing, we are concerned about the temperature of the storage area, humidity, cleanliness, and air flow.

There are four types of storage areas in all foodservice operations: dry storage, chemical storage, refrigerated storage, and freezer storage. Some foodservice operations may also have a deep chilling storage unit.

Let's make sure that we all know the proper temperatures for the storage areas. (**Note to trainer:** As you talk about temperatures, do Activity 2, items 1 and 2.) Temperatures for storage areas should be as follows.

- Dry storage areas should be between 50 °F and 70 °F.
- Refrigerated storage areas should be at or below 41 °F. (Remember, the refrigerator temperature will need to be a little cooler than the temperature desired for the food itself, because if the refrigerator temperature is at 41 °F, it will be difficult to maintain the food temperatures at 41 °F.)
- Deep chilling storage areas should be between 26 °F and 32 °F. Deep chilling storage increases the shelf life of many foods without compromising their quality by freezing. Deep chilling storage is often used in central kitchens (or commissaries) when they are preparing food on days prior to service.
- Freezer storage areas should be between -10 °F and 0 °F. Remember, the colder the temperature, the better it is for food quality.

Once food is received in the operation, it is important to transfer it into storage as quickly as possible. Remember that items should be marked with the receiving date before they are placed into storage. That way, inventory rotation can be monitored. Remember FIFO—first in, first out.

**Do:** Complete Activity 2: Storing Food and Supplies.





## Activity 2: Storing Food and Supplies



### Materials needed:

- Large thermometer with hatch marks at 5 °F (from Lesson 1)
- Markers
- Handout: Sample Invoice (used in Activity 1)
- Fact Sheets:
  - *Storing Foods*
  - *Storing and Using Poisonous or Toxic Chemicals*

1. Place the large thermometer on the wall. Have red and blue markers available.
2. As you discuss storage temperatures, ask the four “aces” to mark one temperature on the thermometer. Use a red pen to mark the dry storage temperature and a blue pen to mark refrigerated and freezer storage temperatures.
3. Ask participants which of the items on the sample invoice should be transferred to storage first, second, and third.
4. Discuss the fact that refrigerated items would be stored first, followed by the frozen items. The items for dry storage (including chemicals) would be placed in storage last. The rationale is that the refrigerated items would be most likely to enter the temperature danger zone first.
5. Ask participants to regroup. This time, participants should match the red card suits (diamonds and hearts) and the black card suits (spades and clubs) to form pairs.
6. Assign each group one item from the sample invoice. Ask them to develop a list of guidelines for storing that particular food item and list on a piece of flip chart paper.
7. Have each group report their findings. Let groups with refrigerated items report first, followed by frozen items, dry storage items, and then chemicals.



## **POTENTIAL RESPONSES**

### **All groups should mention:**

Maintain appropriate temperature

Keep storage area clean

Keep storage area secure

Store all food and supplies at least 6-8 inches above the floor

Keep all items in their original containers or appropriate container

Label and date

Rotate stock using FIFO

Check expiration dates

Prevent cross-contamination

### **Freezer Storage:**

Arrange food for maximum air circulation

Store frozen food in moisture and vapor-proof packaging

### **Refrigerated Storage:**

Keep raw and ready-to-eat foods separate

Store items on appropriate shelves

### **Dry Storage:**

Remove cans from cardboard boxes

Store foods and chemicals in separate areas

### **Chemical Storage:**

Store only in original containers

Keep separate from food

Limit access to chemicals

Maintain perpetual inventory



**Objective 4: List good food handling practices when preparing food. (15 minutes)**

**SAY:** The next step in the process is preparing food. In the preparation step, the main concerns of food handlers are to prevent contamination of food, control the time that food is in the temperature danger zone, and use safe food handling practices.

**Do:** Distribute Fact Sheets: *Preventing Contamination During Food Preparation* and *Controlling Time and Temperature During Preparation*.



**Activity 3: Preparing Recipes**

**Materials needed:**

**Do:** Complete Activity 3: Preparing Recipes.

- One copy of the eight recipes:
  - D-14: Pasta Toss with Vegetables
  - E-01A: Molded Vegetable Salad
  - E-10: Macaroni Salad
  - E-10A: Macaroni and Ham Salad
  - E-12: Potato Salad
  - E-13: Taco Salad
  - F-10: Egg Salad Sandwich
  - F-11: Tuna Salad Sandwich
- Markers
- Two sheets of flip chart paper for each group
- Fact Sheets:
  - *Preventing Contamination During Food Preparation*
  - *Controlling Time and Temperature During Preparation*
  - *Washing Fruits and Vegetables*



1. Divide participants into eight small groups.
2. Give each group one recipe.
3. Ask the group to label one sheet of flip chart paper “prevent contamination” and one sheet of flip chart paper “control time and temperature.”
4. Tell each group to read their recipe and list all of the practices that they can think of to prevent contamination and to control time and temperature.
5. Bring the entire group together and discuss each recipe. Note the similarities and the differences among the recipes.
6. Distribute the Fact Sheets: *Preventing Contamination During Food Preparation* and *Controlling Time and Temperature During Preparation*.

**SAY:** Washing fresh fruits and vegetables is a special area of concern when preparing.

**ASK:** What are some of the food handling and food safety concerns about fresh fruits and vegetables?

**DO:** Write the concerns on a piece of flip chart paper.

**SAY:** You have mentioned several important concerns. In addition to what you have mentioned, we should also think about... (Add items from this list that may not have been mentioned.)

**Areas to Discuss:**

- Cross-contamination
  - Hand washing
  - Cleaning and sanitizing food contact surfaces, equipment, and utensils
  - Washing fruits and vegetables in designated sinks
- Use of chemicals
  - Correct concentrations for cleaning and sanitizing
  - Use of approved chemical washes for fruits and vegetables



- Washing fruits and vegetables
  - Use cold, running water
  - Remove damaged or bruised areas
- Storing fruits and vegetables
  - Label, date, and refrigerate
  - Store at appropriate temperature
  - Use cut melons and other cut fruit within 7 days

**Do:** Distribute Fact Sheet: *Washing Fruits and Vegetables*.

**Objective 5: Describe safe methods for thawing frozen food. (10 minutes)**



**SAY:** Thawing food is closely related to preparing. We purchase many foods frozen and many of them need to be thawed prior to cooking. It is important to plan ahead when using frozen foods so that the correct thawing method can be used. For example, if frozen pork roasts were needed for cooking on Thursday, they should be placed in the refrigerator on Tuesday morning. That step should be included on the production sheet to ensure that the roasts are ready to use on Thursday.

**Do:** Distribute Fact Sheet: *Thawing Foods*

**SAY:** According to the *Food Code*, there are four acceptable methods for thawing food.

1. As part of the cooking process
2. In the refrigerator (depending on the density of the food, this method of thawing could require 2-3 days)
3. Under clean, drinkable, running water at a temperature of 70 °F or less
4. In a microwave oven, if food will be cooked immediately (although this is not considered a best practice in schools)

**Do:** Complete Activity 4: Thawing Food.



## Activity 4: Thawing Food



### Materials needed:

- Copy of Activity 4 food items, cut apart and affixed to index cards
  - Fact Sheet: *Thawing Foods*
1. Give each participant (or pair of participants) one food item.
  2. Ask participants to identify the most appropriate thawing method for each item and explain why.

### POTENTIAL RESPONSES

**Note to trainer:** There may be more than one appropriate method for thawing. Multiple answers have been provided when that is likely to be the case.

**Whole turkey:** Thaw in the refrigerator because it is a dense food.

**Hamburger patties:** Thaw in the refrigerator to shorten cooking process or thaw as part of the cooking process.

**Roast beef:** Thaw in the refrigerator because it is a dense food.

**Frozen eggs:** Thaw in the refrigerator in the original container.

**Pizza:** Thaw as part of the cooking process.

**Chili:** Thaw in the refrigerator or thaw as part of the cooking process.

**Soup:** Thaw in the refrigerator or thaw as part of the cooking process.

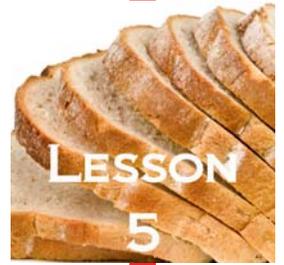
**Frozen vegetables:** Thaw as part of the cooking process because it will thaw quickly in hot water or steam used for cooking.

**Chicken nuggets:** Thaw as part of the cooking process because it is a thin product.

**Lasagna:** Thaw in the refrigerator or thaw as part of the cooking process.

**Casserole:** Thaw in the refrigerator or thaw as part of the cooking process.

**Sausage patty:** Thaw in the refrigerator or thaw as part of the cooking process (it is a thin product).



**Objective 6: List food safety guidelines for cooking food. (10 minutes)**

**Objective 7: State end-point cooking temperatures for foods often prepared in schools. (5 minutes)**

**SAY:** Cooking foods to the correct internal temperature will destroy existing bacteria, even though it may not kill toxins or bacterial spores. The key to this step of the foodservice process is to reach recommended temperatures within an appropriate time frame.

**ASK:** What are some important end-point cooking temperatures we use in foodservice?

**DO:** Post the large thermometer with hatch marks at 5 °F. When someone mentions an important temperature, ask them to mark it on the thermometer.

### **Temperatures to Mark on Thermometer**

**165 °F**—Poultry, stuffing, stuffed meats, stuffed pasta, casseroles, leftovers

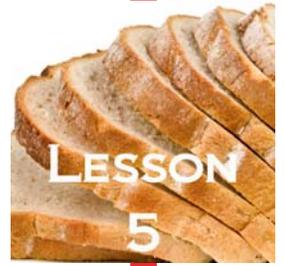
**155 °F**—Ground meats, such as hamburger, ground pork, sausage

**145 °F**—Beef and pork roasts, beef steaks, ham, fish

**135 °F**—Ready-to-eat foods taken from a commercially processed, hermetically sealed package; vegetables (frozen or canned)

**SAY:** Notice that all of these cooking temperatures are above the temperature danger zone. The final cooking temperature is based on the temperature that is needed to destroy the bacteria that is most likely to be associated with the product. Also, keep in mind that there is a time related to that temperature—the product must be heated to that temperature for at least 15 seconds.

**DO:** Complete Activity 5: Identify Cooking Temperatures.



## Activity 5: Identify Cooking Temperatures

### Materials needed:

- Four signs with the following temperatures on them (one temperature per sign): 135 °F, 145 °F, 155 °F, 165 °F
- List of menu items written on index cards
- Fact Sheet: *Cooking Foods*

1. Post the four temperature signs on the wall.
2. Distribute an index card with one menu item written on it to each participant. (canned green beans, frozen chicken patties, taco filling, leftover lasagna, frozen broccoli, pork roast, sausage, chicken noodle casserole, hamburger patties, ham, roast beef, sloppy Joes, canned corn, leftover chili, stuffed pasta shells, roasted turkey)
3. Ask participants to tape their menu item under the appropriate end-point cooking temperature.
4. Go to each temperature sign, and ask participants if each menu item is placed under the correct temperature. If not, ask where the menu item should be placed.

### ANSWERS

#### 135 °F

- Canned green beans
- Frozen chicken patties (precooked)
- Frozen broccoli
- Canned corn

#### 145 °F

- Pork roast
- Ham
- Roast beef

#### 155 °F

- Sausage
- Taco filling
- Sloppy Joes
- Hamburger patties

#### 165 °F

- Frozen chicken patties (if not precooked)
- Leftover lasagna
- Chicken noodle casserole
- Leftover chili
- Stuffed pasta shells
- Roasted turkey



**Do:** Distribute Fact Sheet: *Cooking Foods*.

**SAY:** Let's look at the fact sheet. There are several statements related to monitoring cooking temperatures.

- Check food temperatures with a clean, sanitized, and calibrated thermometer.
- Avoid inserting the thermometer into pockets of fat or near bones when taking internal temperatures.
- Take at least two internal temperatures from each batch of food.
- Insert the thermometer into the thickest part of the food.
- Record the temperature and the time that the temperature was checked.

If a temperature is taken and it does not meet the standard, the typical corrective action is to continue cooking until the appropriate temperature is reached.



**Objective 8: State appropriate holding temperatures for hot and cold food.**

**(15 minutes)**

**SAY:** Holding food after it has been cooked until serving time is done routinely in foodservice operations that serve large numbers of people. In the holding step, the main consideration is the need to keep **cold** food **cold** and **hot** food **hot**! Cold food should be held at or below 41 °F and hot food should be held at or above 135 °F. In other words, it is important to keep food out of the temperature danger zone while holding prior to service.

Research has shown that there often are more problems keeping cold food cold than hot food hot.

**ASK:** What are some strategies that can be used to keep cold food cold?

**Do:** Pause to allow time for participants to respond.

**SAY:** Some responses that might be given and discussed are below.

- Use refrigeration unit maintained at appropriate temperature.
- Surround cold items with ice.
- Use ice sheets under cold items.
- Use insulated containers.
- Use containers that are frozen before use.
- Use batch preparing and serving methods (put out a small amount at a time and change containers frequently).

**ASK:** What are some strategies that can be used to keep hot food hot?

**Do:** Pause to allow time for participants to respond.

**SAY:** Some responses that might be given and discussed are below.

- Use a heated holding unit that has a thermometer gauge.
- Use batch preparation to reduce the holding time.
- Use steam tables for serving lines.

**Do:** Complete Activity 6: Reality Foodservice—Out of the Range.



## Activity 6: Reality Foodservice: Out of the Range



### Materials needed:

- Handouts:
    - Reality Foodservice: Out of the Range—Out of the Cold
    - Reality Foodservice: Out of the Range—Hot, We're Not
  - Fact Sheets:
    - *Holding Cold Foods*
    - *Holding Hot Foods*
1. Assign each participant a fruit or vegetable from the list provided (Note to trainer: You could write fruits and vegetables on small pieces of paper and let participants select one). Have them find the person with the fruit or vegetable that begins with the same letter.

#### **Fruit**

Apple  
Banana  
Cherry  
Date  
  
Eggfruit  
Fig  
Grapes  
Huckleberry  
Indian fig  
Olive  
Persimmon

#### **Vegetable**

Asparagus  
Broccoli  
Cauliflower  
Daikon (Note to trainer: This is a Japanese radish)  
Eggplant  
Fennel  
Green Bean  
Horseradish  
Indian Pea  
Okra  
Pea

2. Assign half of the pairs the “Out of the Cold” scenario and half of the pairs the “Hot, We're Not” scenario.
3. Give participants 5-7 minutes to discuss the realities of their scenarios, answering the questions provided.
4. Bring the group back together to discuss each scenario.

**Objective 9: Describe food safety guidelines for serving food. (15 minutes)**



**SAY:** Serving food to customers is typically the last step of the foodservice process. Foodservice employees can do everything correctly up to the point of service and still serve unsafe food.

There are two main food safety concerns at the serving step.

1. Cross-contamination
2. Temperature control

**Do:** Complete Activity 7: Training Employees on Serving Techniques.



## Activity 7: Training Employees on Serving Techniques



### Materials needed:

- Flip chart paper
  - Painter's tape (one roll)
  - Markers (one set)
  - Fact Sheets:
    - *Serving Food*
    - *Using Utensils when Handling Ready-to-Eat Foods*
    - *Preventing Contamination in Food Bars*
1. Divide the group into two teams by numbering off the group.
  2. Assign one group to self-service food bars and one group to develop training related to traditional serving lines in which employees portion and serve the meals.
  3. Ask each group to develop a list of key concepts that should be included in new employee training.
  4. Ask each group to record the key concepts to be taught on a sheet of chart paper.
  5. Provide about 5 minutes for group discussion.
  6. Reassemble the entire group.
  7. Ask each group to appoint a spokesperson.
  8. Ask each group to post their chart paper and present orally the key concepts they identified.
  9. After both groups have presented, go through the list of key concepts and ask the group to identify if the concept is related to cross-contamination or temperature control.
  10. Summarize by noting the number of items related to each topic.
  11. Distribute the Fact Sheets: *Serving Foods*; *Using Utensils when Handling Ready-to-Eat Foods*; and *Preventing Contamination in Food Bars*.



**Objective 10: List the steps for the safe cooling of food. (15 minutes)**

**SAY:** Cooling is a step of the foodservice process that may not occur frequently or may not be done at all in some foodservice operations. If cooling is done, temperature control is extremely important.

Today, we will talk about the time and temperature guidelines for cooling. Hot foods should be cooled using a two-step process:

1. Hot food must be cooled from 135 °F to 70 °F within 2 hours. If this is not achieved, the food must be reheated to 165 °F for 15 seconds or discarded.
2. It must be cooled within a total of 6 hours from 135 °F to 41 °F (if step one is achieved).

Foods that start at room temperature (70 °F) must be cooled to 41 °F within 4 hours.

**Do:** Complete Activity 8: Show the *Cooling Food* video clip from the *Developing a Food Safety Program Using the Process Approach* video.



## Activity 8: *Cooling Food* Video Clip



### Materials needed:

- DVD player and monitor **OR** computer with Internet connection and monitor
  - *Cooling Food* video clip (from the *Developing a Food Safety Program Using the Process Approach* video)
  - Handout: *Cooling Food* Video Viewing Guide
  - Fact Sheet: *Cooling Food*
1. Ask participants to name some examples of foods that they cool in their operation.
  2. Distribute the Handout: *Cooling Food* Video Viewing Guide.
  3. Show the video clip on cooling food.
  4. Review key points on the video viewing guide.

**SAY:** Research has shown that it often is difficult to meet the standards for cooling time and temperature unless active cooling methods are used. Be sure to use these recommended methods to increase the speed of cooling.

It is best to use some of these methods before beginning the cooling process to increase the likelihood that food will be cooled from 135 °F to 70 °F within 2 hours. But, there is still a possibility that the food may not cool quickly enough.

**ASK:** If you take the temperature at the end of 2 hours and find that the food is not at 70 °F, what corrective action would you take?

**DO:** Pause to allow time for participants to respond.

**SAY:**



Yes, the only corrective action you can take is to reheat the food to 165 °F and begin the cooling process again. This process can be done only one time. If you need to reheat and begin cooling again, it is extremely important the second time to take some actions to speed the cooling process.

It also is important to document the time and temperatures during the cooling process, especially at the 2- and 6-hour time periods. If the food is not cooled quickly enough and corrective actions are taken, it is important to document the corrective actions that were used.

**Do:** Distribute Fact Sheet: *Cooling Food*.



**Objective 11: Describe the reheating process for food. (5 minutes)**

**SAY:** Reheating is the final step of the foodservice process. Reheating is the process of heating a previously cooked food or a leftover. Reheating must be done to the appropriate temperature, and it must be done quickly. The rule for reheating is that food must be heated to 165 °F for 15 seconds within 2 hours.

The goal is to take the food through the temperature danger zone as quickly as possible. Because of the need to quickly reheat food, use only cooking equipment and never use hot-holding equipment for reheating.

There are two other guidelines to keep in mind when reheating.

1. Never mix leftover foods with fresh food.
2. Use refrigerated leftovers within one week and only if they are held at 41 °F or below.

**Do:** Distribute the Fact Sheet: *Reheating Foods*.



**Objective 12: Describe the steps for ensuring food safety when transporting food. (optional objective) (10 minutes)**

**SAY:** Transporting is another step of the foodservice process that may be used in some foodservice operations, but not all. Transporting is done when food is prepared at a central kitchen for service at another site. Food may be produced in a central kitchen designed for large scale production or it may be done at one large kitchen as a way to save labor costs. Food may be transported either hot or cold and may be transported in bulk or in individual servings.

The two major areas of concern when transporting food are

1. temperature control and
2. cross-contamination.

**ASK:** What temperature should food be during transport?

**DO:** Pause to allow time for participants to respond.

**SAY:** Yes, you are correct. Remember, the temperature danger zone is your guide. Keep cold food at or below 41 °F and hot food at or above 135 °F.

We have also talked about monitoring procedures throughout this lesson.

**ASK:** What monitoring should be done when transporting foods?

**DO:** Pause to allow time for participants to respond.

**Potential Responses**

- Check temperatures of all food carriers:
  - cold carriers at the warmest part, and
  - hot carriers at the coldest part.
- Check food temperatures when placed in food carriers.
- Check food temperatures when received at satellite kitchen.



**ASK:** What corrective actions would you take if temperatures are not appropriate for cold and/or hot foods?

**Do:** Pause to allow time for participants to respond.

### **Potential Responses**

- Continue heating or cooling food carriers if not at appropriate temperatures.
- Reheat food to 165 °F for 15 seconds.
- Use active cooling methods to cool food (ice bath, blast chiller, etc.).
- Repair equipment if temperature control continues to be a problem.
- Discard food that has been held more than 4 hours in the temperature danger zone.

**SAY:** It is also important to record all of the monitoring and the corrective actions that are taken. When transporting food, it is important to document the time and temperature of the food when it leaves the production kitchen and again when it arrives at the receiving kitchen. Remember, if it has not been documented, it has not been done.

**Do:** Distribute the Fact Sheet: *Transporting Foods*.

## Lesson Wrap Up

(5 minutes)



**SAY:** In this lesson, we have discussed the steps of the foodservice process from receiving to serving. At each step, foodservice employees need to use appropriate food handling practices to keep food safe to eat. It is particularly important to control cross-contamination and to control food temperatures.

It is also important to remember that each employee must take an active role in preventing foodborne illness, no matter what their role is in preparing and serving food to children.

**ASK:** Do you have any questions about anything we have learned in this lesson?

**Do:** Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find the answers and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.

**Do:** (ONLY if Lesson 5 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 161 in the *Serving It Safe Participant's Workbook*. Ask participants to take 5 minutes to complete the assessment.

When participants have completed the assessment, review the answers with the group provided on page 326.

## LESSON 5, ACTIVITY 1 HANDOUT

### Evaluation Criteria for Foods During Receiving



**Directions:** Use this checklist to evaluate food products during receiving.

#### Meat and Poultry

##### Red Meat

*Quality, Appearance, Texture*

- USDA inspected stamp
- Firm and elastic to touch
- No slimy, sticky, or dry feel
- Beef is bright red; pork is light pink

*Internal Temperature*

- Fresh meat at or below 41 °F
- Frozen meat delivered frozen solid

*Signs of Spoilage*

- Brown, green, or purple discoloration
- Black, white, or green spots indicating mold
- Freezer burn (tan, dried look)

##### Poultry

*Quality, Appearance, Texture*

- USDA inspected stamp
- Firm, meaty flesh

*Internal Temperature*

- Fresh poultry at or below 41 °F
- Fresh poultry surrounded by crushed ice
- Frozen poultry delivered frozen solid

*Signs of Spoilage*

- Purplish or greenish discoloration
- Abnormal odor
- Stickiness under wings and around joints
- Dark wing tips
- Freezer burn

#### Eggs

*Quality, Appearance, Texture*

- USDA inspected (shield displayed)
- Clean, dry shells without cracks

*Temperature*

- Delivery truck temperature at or below 45 °F

*Signs of Spoilage*

- Cracked, checked, or dirty shells

#### Dairy Products

##### Milk, Yogurt, Cheese, Butter/Margarine

*Quality, Appearance, Texture*

- Pasteurized or ultra-pasteurized
- Sweet smell
- Packaging clean and intact

*Internal Temperature*

- At 41 °F or below
- Delivered refrigerated

*Signs of Spoilage*

- Sour, moldy odor
- Check the sell-by-date
- Mold

##### Ice Cream

*Quality, Appearance, Texture*

- Tightly sealed cartons
- No ice crystals
- Products not misshapen due to thawing and refreezing

*Internal Temperature*

- Delivered at 6 °F to 10 °F

*Signs of Spoilage or Poor Quality*

- Large ice crystals indicate quality loss

### Fresh Produce

#### *Quality, Appearance, Texture*

- Little or no dirt
- Reasonably unblemished
- No evidence of mold
- Firm texture

#### *Internal Temperature*

- Refrigerated produce between 33 °F and 41 °F
- Non-refrigerated produce between 50 °F and 60 °F
- Fresh-cut produce between 33 °F and 41 °F
- Cut melons at or below 41 °F

#### *Signs of Spoilage*

- Signs of insect infestation
- Mold
- Mushiness, wateriness, or wilting
- Discoloration or blemishes
- Cuts

### Frozen Foods

#### *Quality, Appearance, Texture*

- Packaging intact and clean

#### *Internal Temperature*

- Frozen foods should be frozen solid
- Insert stem of food thermometer between packages in case

#### *Signs of Spoilage*

- Signs of thawing (liquids at bottom of carton)
- Signs of thawing and refreezing (ice crystals or ice on boxes)

### Canned and Dry Foods

#### **Canned Foods**

##### *Quality, Appearance*

- Packaging intact and clean

##### *Signs of Spoilage*

- Swollen, leaking, rusty, or dented cans
- Flawed seals
- Label intact

#### **Dry Foods**

##### *Quality, Appearance*

- Packaging intact
- Dry and undamaged

##### *Signs of Spoilage*

- Damp or moldy container
- Insect infestation

### Modified Atmosphere Packaged or Vacuum Packed Foods

- Insert a food thermometer between two packages, being careful not to puncture packaging; temperature as specified by manufacturer.
- Examine color indicators on package to see if the temperature was maintained.

## LESSON 5, ACTIVITY 2

### Sample Invoice



### Custom Foods

2818 S. Foodway Drive  
 Orange City, ST 99292  
 416-978-3452

**Sold to:** Top Notch School District  
 2919 W. 32<sup>nd</sup> Street  
 Appletown, ST 99343

**Deliver to:** A-One School  
 119 N. Gala Street  
 Appletown, ST 99343

## INVOICE

**Date:** September 15, 2007  
**Invoice No.:** XB1348575  
**Purchase Order No.:** TNS3405986  
**Delivery Date:** September 17, 2007

Quantity Ordered	Quantity Delivered	Back Order	Product Number	Product Description	Unit Price	Extension
10 boxes	8 boxes	2 boxes	M3651	Hamburger Patties, 5/1, frozen		
10 boxes	10 boxes		M3659	Chicken Nuggets, frozen		
1 case	1 case		V4590	Broccoli, chopped, frozen		
2 boxes	2 boxes		P6900	Apples, Gala, 113 ct.		
1 lug	1 lug		P6978	Tomatoes, 5 x 6 lug		
1 box	1 box		P6914	Oranges, 88 ct.		
1 case	1 case		D1234	Green Beans, #10 cans, 6/case		
4 bags	4 bags		M9887	Flour, 50 lb. bag		
3 bags	3 bags		M9888	Sugar, 25 lb. bag		
1 case	1 case		R7890	Eggs, case		
1 case	1 case		R8799	Yogurt, strawberry, 1/2 pint		
1 case	1 case		R8792	Yogurt, blueberry, 1/2 pint		
4 cases	4 cases		R1000	Milk, white, 1%, 1/2 pint		
5 cases	5 cases		R1001	Milk, chocolate, 1%, 1/2 pint		
1 case	1 case		C2997	Degreaser, 1 gal., 4/case		

## **LESSON 5, ACTIVITY 3**

### **Recipes**

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Use the following recipes to complete Lesson 5, Activity 3. This activity demonstrates the main concerns of food handlers—preventing contamination, controlling the time that food is in the temperature danger zone, and using safe food handling practices.

## RECEIVING DELIVERIES

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To ensure that all food is received fresh and safe when it enters the foodservice operation and to transfer food to proper storage as quickly as possible

**Scope:** This procedure applies to foodservice employees who handle, prepare, or serve food.

**Key Words:** Cross-contamination, temperatures, receiving, holding, frozen goods, delivery

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Schedule deliveries to arrive at designated times during operational hours.
4. Post the delivery schedule, including the names of vendors, days and times of deliveries, and drivers' names.
5. Establish a rejection policy to ensure accurate, timely, consistent, and effective refusal and return of rejected goods.
6. Organize freezer and refrigeration space, loading docks, and store rooms before deliveries.
7. Gather product specification lists and purchase orders, temperature logs, calibrated thermometers, pens, flashlights, and clean loading carts before deliveries. Refer to the Using and Calibrating Thermometers SOP.
8. Keep receiving area clean and well lighted.
9. Do not touch ready-to-eat foods with bare hands.
10. Determine whether foods will be marked with the date arrival or the "use by" date and mark accordingly upon receipt.
11. Compare delivery invoice against products ordered and products delivered.
12. Transfer foods to their appropriate locations as quickly as possible.

**Monitoring:**

1. Inspect the delivery truck when it arrives to ensure that it is clean, free of putrid odors, and organized to prevent cross-contamination. Be sure refrigerated foods are delivered on a refrigerated truck.
2. Check the interior temperature of refrigerated trucks.
3. Confirm vendor name, date and time of delivery, as well as driver's identification before accepting delivery. If driver's name is different from what is indicated on the delivery schedule, contact the vendor immediately.
4. Check frozen foods to ensure that they are all frozen solid and show no signs of thawing and refreezing, such as the presence of large ice crystals or liquids on the bottom of cartons.
5. Check the temperature of refrigerated foods.
  - a. For fresh meat, fish, and poultry products, insert a clean and sanitized thermometer into the center of the product to ensure a temperature of 41 °F or below. The temperature of milk should be 45 °F or below.
  - b. For packaged products, insert a food thermometer between two packages being careful not to puncture the wrapper. If the temperature exceeds 41 °F, it may be necessary to take the internal temperature before accepting the product.
  - c. For eggs, the interior temperature of the truck should be at or below 45 °F.
6. Check dates of milk, eggs, and other perishable goods to ensure safety and quality.
7. Check the integrity of food packaging.
8. Check the cleanliness of crates and other shipping containers before accepting products. Reject foods that are shipped in dirty crates.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Reject the following:
  - frozen foods with signs of previous thawing;
  - cans that have signs of deterioration, such as swollen sides or ends, flawed seals or seams, dents, or rust;
  - punctured packages;
  - foods with out-dated expiration dates; and
  - foods that are out of the safe temperature zone or deemed unacceptable by the established rejection policy.

**Verification and Record Keeping:**

Record the temperature and the corrective action on the delivery invoice or on the Receiving Log. The foodservice manager will verify that foodservice employees are receiving products using the proper procedure by visually monitoring receiving practices during the shift and reviewing the Receiving Log at the close of each day. Receiving Logs are kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

## LESSON 5, ACTIVITY 4

### Thawing Food



<b>Whole Turkey</b>	<b>Hamburger Patties</b>
<b>Roast Beef</b>	<b>Frozen Eggs</b>
<b>Pizza</b>	<b>Chili</b>
<b>Soup</b>	<b>Frozen Vegetables</b>
<b>Chicken Nuggets</b>	<b>Lasagna</b>
<b>Casserole</b>	<b>Sausage Patties</b>

## LESSON 5, ACTIVITY 7

### Reality Foodservice: Out of the Range— Out of the Cold



Each day, the person in charge of salad preparation and service at a large high school prepares a large, beautiful salad bar complete with garnishes to make it look great. The students love the variety of cold food choices, but have complained that the salad items seem a little too warm. Now that the school district is required to implement a food safety program, the salad person has started to check temperatures at the beginning of service. Some of the temperatures are a little high (42 °F-45 °F) but she decides that is okay because the salads are not out for more than 1 ½ hours.

1. What corrective actions would you recommend to get the salad items “back in the cold?”
  
2. What monitoring procedures would you recommend? Include when and how monitoring should take place.

## POSSIBLE RESPONSES

### Lesson 5, Activity 7 Reality Foodservice: Out of the Range— Out of the Cold



**Note to trainer:** Be sure to point out that steps taken prior to serving food make a big impact on serving temperatures. That is why all steps of the foodservice process are important. Good food safety practices are needed at each step.

Each day, the person in charge of salad preparation and service at a large high school prepares a large, beautiful salad bar complete with garnishes to make it look great. The students love the variety of cold food choices, but have complained that the salad items seem a little too warm. Now that the school district is required to implement a food safety program, the salad person has started to check temperatures at the beginning of service. Some of the temperatures are a little high (42 °F-45 °F) but she decides that is okay because the salads are not out for more than 1 ½ hours.

1. What corrective actions would you recommend to get the salad items “back in the cold?”
  - Check refrigerator temperatures to make sure they are low enough for proper cooling.
  - Pre-cool salad bar items, such as canned fruits and vegetables.
  - Pre-cool ingredients in salads prior to salad preparation.
  - Prepare salads in enough time so that they can be refrigerated prior to setup of the salad bar.
  - Set out small portions of salads and replenish frequently.
  - Use salad bars that are cooled by
    - refrigerated wells,
    - ice around salad bar containers,
    - ice packs that can be frozen and placed next to salad bar containers, and
    - containers that can be frozen.
  - Set up the salad bar as near to serving time as possible.

2. What monitoring procedures would you recommend? Include when and how monitoring should take place.

**When**

- Check temperatures of cold items when setting up the salad bar.
- Check temperatures of items at the end of each lunch period.

**How**

- Use a calibrated thermometer.
- Sanitize the thermometer between uses.
- Take temperatures at the warmest spot.
- Record the temperature and time taken.

## LESSON 5, ACTIVITY 7

### Reality Foodservice: Out of the Range— Hot, We're Not



Cooley High School serves almost 500 students with meal periods being spread out over nearly 2 hours. The first meal period is scheduled for 11:30 a.m. and the last meal period is at 1:15 p.m. Students are fairly evenly distributed over the meal periods, but there is some variation based on student activities. Students and faculty have complained about food being cold for some time, but there was little concern about it until the school district implemented its food safety program. When the foodservice staff began taking temperatures at every meal period, they found that many of their hot food items were cold by the time they were served to the later students.

1. What strategies could be used to ensure that hot food is hot when it is served?
3. What monitoring procedures would you recommend? Include when and how monitoring should take place.

## POSSIBLE RESPONSES

### Lesson 5, Activity 7 Reality Foodservice: Out of the Range— Hot, We're Not



**Note to trainer:** Be sure to point out that steps taken prior to serving food make a big impact on serving temperatures. That is why all steps of the foodservice process are important. Good food safety practices are needed at each step.

Cooley High School serves almost 500 students with meal periods being spread out over nearly 2 hours. The first meal period is scheduled for 11:30 a.m. and the last meal period is at 1:15 p.m. Students are fairly evenly distributed over the meal periods, but there is some variation based on student activities. Students and faculty have complained about food being cold for some time, but there was little concern about it until the school district implemented its food safety program. When the foodservice staff began taking temperatures at every meal period, they found that many of their hot food items were cold by the time they were served to the later students.

1. What strategies could be used to ensure that hot food is hot when it is served?
  - Batch cook as much as possible.
  - Check temperatures of holding equipment.
  - Check temperatures of food when it is placed on the serving line.
  - Use heated serving lines and preheat according to equipment manufacturer's directions.
  - Cover items on the serving line when possible.
2. What monitoring procedures would you recommend? Include when and how monitoring should take place.

#### When

- Check temperatures of food as it is placed in holding units.
- Check temperatures of food as it is placed on the serving lines.
- Check temperatures of food between serving periods.

### **How**

- Use a calibrated thermometer.
- Sanitize the thermometer between uses.
- Take temperatures at the coolest spot.
- Record the temperature and time taken.

## LESSON 5, ACTIVITY 8

### *Cooling Food* Video Clip Instructions



Prior to the seminar, download the *Cooling Food* video clip to your hard drive. (This video clip is part of the *Developing a Food Safety Program Using the Process Approach* video series.) Go to [www.nfsmi.org](http://www.nfsmi.org) to download the video. When you get to the Web page, go to the **Document Library**. In the **Education and Training Resources by Title** listing, find the Serving It Safe, 3<sup>rd</sup> Edition link. On the Serving It Safe page, select the video, *Video Clip Cooling Food*. Use the WMV version to download and save to your computer. Have this clip ready to play on your computer before the seminar begins.

If you have any problems accessing the video, please contact NFSMI at 1-800-321-3054.

## LESSON 5, ACTIVITY 8

### *Cooling Food* Video Viewing Guide



What cooling techniques were suggested in the video?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

#### **Key Points for Cooling Foods**

Cooling hot food is critical.

A standard operating procedure is needed for cooling foods.

Temperatures of food must be taken during cooling.

State and local requirements should be followed.

## LESSON 5, ACTIVITY 8

### *Cooling Food* Video Viewing Guide (Answers for Trainers)



What cooling techniques were suggested in the video?

1. Use batch cooking.
2. Put food in shallow containers uncovered.
3. Put food on top shelf in back of refrigerator.
4. Use quick-chill unit, such as a blast chiller.
5. Pre-cool ingredients and containers.
6. Use ice bath.
7. Use ice paddle.

### Key Points for Cooling Foods

Cooling hot food is critical.

A standard operating procedure is needed for cooling foods.

Temperatures of food must be taken during cooling.

State and local requirements should be followed.

## LESSON 5: A PROCESS FOR PREVENTING FOODBORNE ILLNESS PRE- AND POST-LESSON ASSESSMENT

1. Which of the following methods of thawing is acceptable?
  - a. Place frozen food in the refrigerator on the bottom shelf.
  - b. Place frozen food in room temperature water.
  - c. Place frozen food in the refrigerator on the top shelf.
  - d. Thaw frozen food in hot water and then cook immediately.
  
4. What is the recommended cooking temperature for a raw hamburger patty based on the *Food Code*?
  - a. 135 °F
  - b. 145 °F
  - c. 155 °F
  - d. 165 °F
  
5. What are the recommended holding temperatures for cold and hot foods based on the *Food Code*?
  - a. 41 °F or below for cold foods, 135 °F or above for hot foods
  - b. 45 °F or below for cold foods, 140 °F or above for hot foods
  - c. 41 °F or below for cold foods, 140 °F or above for hot foods
  - d. 45 °F or below for cold foods, 135 °F or above for hot foods
  
6. Which of the following statements is **true** about proper cooling of food?
  - a. Plastic containers cool more quickly than stainless steel.
  - b. Putting hot food immediately into a freezer is a best practice.
  - c. Divide food into the smallest quantity possible before cooling.
  - d. Using the two-step cooling method, total time is more important than temperature.
  
7. Which of the following statements is **most true** about reheating leftover foods?
  - a. Reheat to 155 °F for 20 seconds
  - b. Reheat to 165 °F for 20 seconds within 1 hour
  - c. Reheat to 165 °F for 15 seconds
  - d. Reheat to 165 °F for 15 seconds within 2 hours



## LESSON 5: A PROCESS FOR PREVENTING FOODBORNE ILLNESS PRE- AND POST-LESSON ASSESSMENT ANSWERS

1. Which of the following methods of thawing is acceptable?
  - a. Place frozen food in the refrigerator on the bottom shelf.
  - b. Place frozen food in room temperature water.
  - c. Place frozen food in the refrigerator on the top shelf.
  - d. Thaw frozen food in hot water and then cook immediately.
2. What is the recommended cooking temperature for a raw hamburger patty based on the *Food Code*?
  - a. 135 °F
  - b. 145 °F
  - c. 155 °F
  - d. 165 °F
3. What are the recommended holding temperatures for cold and hot foods based on the *Food Code*?
  - a. 41 °F or below for cold foods, 135 °F or above for hot foods
  - b. 45 °F or below for cold foods, 140 °F or above for hot foods
  - c. 41 °F or below for cold foods, 140 °F or above for hot foods
  - d. 45 °F or below for cold foods, 135 °F or above for hot foods
4. Which of the following statements is **true** about proper cooling of food?
  - a. Plastic containers cool more quickly than stainless steel.
  - b. Putting hot food immediately into a freezer is a best practice.
  - c. Divide food into the smallest quantity possible before cooling.
  - d. Using the two-step cooling method, total time is more important than temperature.
5. Which of the following statements is **most true** about reheating leftover foods?
  - a. Reheat to 155 °F for 20 seconds.
  - b. Reheat to 165 °F for 20 seconds within 1 hour.
  - c. Reheat to 165 °F for 15 seconds.
  - d. Reheat to 165 °F for 15 seconds within 2 hours.



## RESOURCES AND REFERENCES

### RESOURCES

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## **LESSON 6: FOOD SAFETY PROGRAMS IN SCHOOLS**

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## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for Lesson 6: Food Safety Programs in Schools. Keep track of your progress by checking off tasks as they are completed.

### Lesson 6 Preparation Checklist

Done	Prepare for the lesson.
<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Carefully read the lesson plan.
<input type="checkbox"/>	Review learning activities.
<input type="checkbox"/>	Make copies of the Pre- and Post-Lesson Assessment.*
	<b>*Note:</b> Use only if this <i>Serving It Safe Seminar</i> lesson is taught individually. Assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
<input type="checkbox"/>	Make copies of Lesson 6 Fact Sheets.*
	<input type="checkbox"/> Fact Sheet: <i>The Process Approach for Foods that Require Time and Temperature Control</i>
	<input type="checkbox"/> Fact Sheet: <i>No Cook Process</i>
	<input type="checkbox"/> Fact Sheet: <i>Same Day Service Process</i>
	<input type="checkbox"/> Fact Sheet: <i>Complex Food Preparation Process</i>
	<b>*Note:</b> Fact Sheets are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
<input type="checkbox"/>	Make copies of Lesson 6 Handouts.*
	<input type="checkbox"/> All USDA/NFSMI Food Safety Standard Operating Procedures
	<input type="checkbox"/> <i>Process Approach Overview</i> Video Viewing Guide
	<input type="checkbox"/> Group Menu Items by Process Category
	<b>*Note:</b> Handouts are included in the <i>Serving It Safe Seminar</i>

*Participant's Workbook.* If the *Participant's Workbook* is provided to participants, copies are not necessary.



**Gather materials.**

- Activity 1: Using Standard Operating Procedures**
  - Handouts: Different USDA/NFSMI Food Safety Standard Operating Procedures for each participant
- Activity 2: *Process Approach Overview* Video Clip**
  - DVD player and monitor **OR** computer with Internet connection and monitor
  - Process Approach Overview* video clip (from the *Developing a Food Safety Program Using the Process Approach* video)
  - Handout: *Process Approach Overview* Video Viewing Guide
  - Fact Sheets:
    - *The Process Approach for Foods that Require Time and Temperature Control*
    - *No Cook Process*
    - *Same Day Service Process*
    - *Complex Food Preparation Process*
- Activity 3: Steps in the Three Process Categories**
  - Three sets of signs for process steps: purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, transporting
  - Markers
- Activity 4: Group Menu Items by Process Category**
  - Flip chart paper
  - Markers
  - Handout: Group Menu Items by Process Category



**On seminar day:**

- Set up room with flip chart paper for activities.
- Place pens or pencils on tables (one for each participant).
- Place one marker on each table.
- On the instructor's table, place the following:
  - Handouts (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Fact Sheets (one copy for each participant if the *Serving It Safe Participant's Workbook* is not provided)
  - Painter's tape
  - Trays with supplies
  - Pre-Lesson Assessment (if Lesson 6 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)
  - Post-Lesson Assessment (if Lesson 6 is presented individually and if *Serving It Safe Participant's Workbook* is not provided)



## LESSON INTRODUCTION AND LEARNING OBJECTIVES

The *Serving It Safe* training has provided basic food safety information that employees need to apply in a foodservice operation. Lesson 6 will focus on the basic requirements for a food safety program based on HACCP principles. A comprehensive written food safety program brings together all of the basic food safety practices that emphasize good food safety and prevention of foodborne illness. It focuses on three key areas: time and temperature control, personal hygiene, and prevention of contamination.

Following this lesson, participants will be able to

4. list components of a food safety program;
5. describe the Process Approach; and
6. identify menu items that fit into the three process categories: No Cook, Same Day Service, and Complex Food Preparation.

There are other programs, such as *Developing a School Food Safety Program*, designed to provide more depth about developing and implementing a food safety program for schools. Knowledge gained from completing the *Serving It Safe* course will prepare participants for moving on to the next steps of implementing a food safety program in their schools.

## LESSON AT-A-GLANCE

Time	Topic	Task	Materials
5 minutes	<b>Introduction and Overview</b>	<ol style="list-style-type: none"> <li>1. Introduce instructor and class participants.</li> <li>2. Introduce Lesson 5.</li> <li>3. List lesson objectives.</li> </ol>	
	<b>Pre- and Post-Lesson Assessment</b> Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.		See page 387.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
10 minutes	<b>Objective 1</b> List components of a food safety program.	<b>Activity 1:</b> Using Standard Operating Procedures	USDA/NFSMI Food Safety Standard Operating Procedures
40 minutes	<b>Objective 2</b> Describe the Process Approach.	<b>Activity 2:</b> <i>Process Approach</i> Video Clip  <b>Activity 3:</b> Steps in the Three Process Categories	Handouts: <i>Process Approach Overview</i> Video Viewing Guide  Fact Sheets: <i>The Process Approach for Foods that Require Time and Temperature Control</i> <i>No Cook Process</i>

			<i>Same Day Service Process</i> <i>Complex Process</i>
20 minutes	<p><b>Objective 3</b> Identify menu items that fit into the three process categories: No Cook, Same Day Service, and Complex Food Preparation.</p>	<p><b>Activity 4: Grouping</b> Menu Items by Process Category</p>	Handout: Group Menu Items by Process Category
5 minutes	<p><b>Wrap Up</b></p> <p><b>Pre- and Post-Lesson Assessment</b></p> <p>Note: Only if this <i>Serving It Safe Seminar</i> lesson is taught individually.</p>		<p>See page 387.</p> <p>Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i>. If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.</p>

## LESSON 6: FOOD SAFETY PROGRAMS IN SCHOOLS LESSON PLAN



### Introduction and Overview

(5 minutes)

**SAY:** It is important to follow basic food handling practices at each step in the food preparation process. These operational steps include purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, and transporting. Three key food safety practices are stressed at each operational step: time and temperature control, personal hygiene, and prevention of contamination.

All of these areas provide the basis for implementing a school food safety program. Lesson 6 will focus on the introduction of basic principles for developing a school food safety program. Knowledge that you have gained from completing the *Serving It Safe* course will prepare you for moving on to the next steps of implementing a food safety program in your school. For a more comprehensive resource for developing a written school food safety program, refer to the resource *Developing a School Food Safety Program*.

**Do:** Refer participants to the lesson objectives in the *Serving It Safe Seminar Participant's Workbook*, if provided.

**SAY:** After this lesson, you will be able to

1. list components of a food safety program;
2. describe the Process Approach; and
3. identify menu items that fit into the three process categories: No Cook, Same Day Service, and Complex Food Preparation.

**Do:** (ONLY if Lesson 6 is presented as an individual training session)  
Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 207 in the *Serving It Safe Seminar Participant's Workbook*. Ask participants to take about 5 minutes to complete the assessment.



**Objective 1: List the components of a food safety program. (10 minutes)**

**SAY:** Section 111 of the Child Nutrition & WIC Reauthorization Act of 2004 (Public Law 108-265) amended section 9(h) of the Richard B. Russell National School Lunch Act by requiring school food authorities (SFAs) to implement a food safety program for the preparation and service of school meals served to children. The food safety program must be based on all the food safety principles outlined in the U.S. Department of Agriculture guidance for the implementation of comprehensive food safety programs in schools participating in the National School Lunch Program. USDA recommends the Process Approach.

There are two components of a food safety program.

1. Written standard operating procedures
2. Written food safety program for each school

Written standard operating procedures guide practices and procedures for producing safe food. They address basic cleaning and sanitation programs and each step in the foodservice process (purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, and transporting).

Standard operating procedures provide the foundation for the food safety program, and support use of the Process Approach. It is recommended that standard operating procedures are written and include the following information.

- Temperature control points
- Monitoring procedures
- Corrective actions
- Suggested record keeping documents
- Verification procedures

**Do:** Complete Activity 1: Using Food Safety Standard Operating Procedures (SOPs).



## Activity 1: Using Food Safety Standard Operating Procedures (SOPs)

### Materials needed:

One USDA/NFSMI Food Safety Standard Operating Procedure (SOP) for each participant

1. Distribute one SOP to each participant.
2. Ask participants to read over the SOP they were given.
3. Discuss the purpose of each section of the SOP.
4. Ask participants to state the title of their SOP to illustrate the broad scope of the topics.

**SAY:** The key sections in a SOP are: purpose, instructions, monitoring, corrective actions, and verification and record keeping.

The **purpose statement** indicates why the standard operating procedure is important and how it fits into the food safety program. The **instructions** provide a step-by-step description of procedures that should be followed.

**Monitoring** is the process of checking to make sure that an operation is following standard operating procedures and meeting important times and temperatures for food. Documenting temperatures and times is part of the monitoring process.

**Corrective Actions** are specific, pre-planned actions that must be taken if a standard operating procedure is not followed or if a time and temperature is not met. For example, if a cooking temperature is not met, additional cooking would be needed.





**Verification** is the procedure that confirms that a food safety program is working according to plan. The supervisor or kitchen manager plays an important role in verification by checking to make sure that monitoring and documentation is done. The verification process will identify changes that need to be made in the food safety program so that it will be effective.

**Record Keeping** is needed to document monitoring and corrective actions taken. Records should be retained for 1 year (or longer if required by your state).

**Do:** Remind participants that the USDA/NFSMI standard operating procedures are templates and should be modified to meet the needs of a specific foodservice operation.



## Objective 2: Describe the Process Approach. (40 minutes)

**SAY:** The Food and Drug Administration (FDA) developed a process approach to implementing HACCP programs. This approach was adopted and modified by USDA when they developed guidance for developing school food safety programs.

**ASK:** Just what is the Process Approach?

**SAY:** Using the Process Approach, menu items are grouped into three broad categories based on how many times the item moves through the temperature danger zone. The three categories are No Cook Process, Same Day Service Process, and Complex Food Preparation Process. Although the menu items within a category may be varied, the measures used to prevent or control hazards are the same within the category.

The steps in the foodservice process are key to analyzing menu items and pointing out when monitoring needs to be done and when temperatures need to be taken. To introduce the process approach, we will watch a short video clip.

**Do:** Watch the *Process Approach Overview* video clip.



### Activity 2: *Process Approach Overview* Video Clip

#### Materials needed:

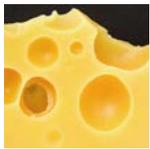
- DVD player and monitor **OR** computer with Internet connection and monitor
- *Process Approach Overview* video clip (from the *Developing a Food Safety Program Using the Process Approach* video)



- Handout: *Process Approach Overview* Video Viewing Guide
  - Fact Sheets:
    - *The Process Approach for Foods that Require Time and Temperature Control*
    - *No Cook Process*
    - *Same Day Service Process*
    - *Complex Food Preparation Process*
1. Show the *Process Approach Overview* video clip of *Developing a Food Safety Program Using the Process Approach* video.
  2. Distribute fact sheets.
  3. Post flow charts for all three processes.

**SAY:** Let's review the three processes and discuss control measures that need to be taken at each step for each process.

**DO:** Complete Activity 3: Steps in the Three Process Categories.



### Activity 3: Steps in the Three Process Categories

**Materials needed:**

- Three sets of signs for process steps: purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, transporting
  - Markers
1. Divide participants into three groups by counting off chef salad, hamburgers, and roast turkey. Participants in the chef salad group represent the No Cook Process; participants in the hamburger group



represent Same Day Cooking Process; and participants in the roast turkey group represent Complex Food Preparation Process.

2. Give each group a set of the process steps signs. Ask them to post the steps included in the process category their group represents, in the order that the step would occur.
3. Ask participants in the group to draw a clipboard and pencil on the steps where data should be recorded.
4. Ask participants in the group to draw a thermometer on the steps where temperatures should be taken.
5. Ask each group to present their process, beginning with the No Cook Process, then the Same Day Service Process, and finally the Complex Food Preparation Process.
6. Compare the differences in the steps after each group has posted and presented the process.

**\*Note to trainer:** Following are notes about what should be discussed at each step.

**Purchasing:** The most important control measure at the purchasing step is to purchase from known sources.

**Receiving:** The most important control measure at the receiving step is monitoring receiving temperatures. Receiving temperatures need to be taken and recorded at the receiving step as part of a food safety program.

**Storing:** At the storing step, there are three control measures that are emphasized: store food at proper temperatures, prevent cross-contamination, and store food away from chemicals. Note on the flow chart that there is a clipboard. That signifies that storage temperatures need to be monitored and recorded.

**Preparing:** Three control measures are important during preparation: following good personal hygiene, restricting ill employees from working with food, and preventing cross-contamination.



**Cooking:** During the cooking step, temperature control is critical. The appropriate end-point cooking temperature must be reached for the appropriate time. Cooking temperatures must be monitored and recorded.

**Serving and Holding:** At the serving step, the important control measures include using gloves to prevent bare-hand contact with ready-to-eat food, using good personal hygiene, and restricting ill employees from handling food. Temperature control is the key control measure at the holding step. Hot food should be held at or above 135 °F. Holding temperatures need to be checked and recorded.

**Cooling:** Temperature control is very important during the cooling step. Hot foods should be cooled from 135 °F to 70 °F within 2 hours. Corrective action should be taken immediately if food is not chilled from 135 °F to 70 °F within 2 hours. Once the 2-hour cooling time has been met, food should be cooled from 70 °F to 41 °F within an additional 4 hours. The total cooling process from 135 °F to 41 °F may not exceed 6 hours. Corrective action must be taken immediately if the food is not chilled from 135 °F to 41 °F within the 6-hour cooling process. Cooling temperatures must be taken and recorded at each step in the cooling process.

**Reheating:** At the reheating step, temperature control is the important control measure. Foods should be reheated to 165 °F for 15 seconds within 2 hours. Temperatures for reheated food should be monitored and recorded.

**Transporting:** For those foodservice operations that transport food, time and temperature controls are very important. Temperature should be maintained at or below 41 °F for cold food and at or above 135 °F for hot food during transportation. Temperatures need to be checked and recorded when food leaves the production kitchen and again when it is delivered to the receiving kitchen.



**Objective 3: Identify menu items that fit into the three process categories: No Cook, Same Day Service, and Complex Food Preparation. (20 minutes)**

**SAY:** Now that you have a good understanding of the three processes, let's group menu items into the three groups.

**DO:** Complete Activity 4: Group Menu Items by Process Category.



**Activity 4: Group Menu Items by Process Category**

**Materials needed:**

- Handout: Group Menu Items by Process Category
  - Flip chart paper
  - Markers
1. Divide participants into teams of two or three by counting off with “no cook,” “same day,” and “complex.” Distribute a copy of the Handout: Group Menu Items by Process Category to each group.
  2. Ask the teams to decide which processes the menu item would be placed in: No Cook, Same Day, and Complex Food Preparation.
  3. Post three pieces of chart paper with the following headings: No Cook, Same Day, and Complex Food Preparation.
  4. Ask for a volunteer to record the menu item under the correct process. As the group discusses each item, have the recorder write the menu item on the appropriate flip chart paper.
  5. Discuss items that might be placed into a different process, depending on the process used in a particular school.

**SAY:** Grouping foods that require time and temperature control depends on how the item is prepared. The same menu item can be grouped differently depending on the recipe used in a particular foodservice operation. One size does not fit all.

## Lesson Wrap Up

(5 minutes)



**SAY:** This lesson has covered the basics of the Process Approach to developing a food safety program.

**ASK:** How many of you have a food safety program in your school?

**DO:** Pause to allow time for participants to respond.

**ASK:** What is your role in implementing the food safety program?

**DO:** Pause to allow time for participants to respond.

**SAY:** A food safety program is very important for any school foodservice operation. The food safety program is only as good as the employees who implement the program. YOU are important in ensuring the safety of food served to children.

**ASK:** Do you have any questions about anything we have learned in this lesson?

**DO:** Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find the answers and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.

**DO:** (ONLY if Lesson 6 is presented as an individual training session)

Distribute the Pre- and Post-Lesson Assessment or ask participants to turn to page 207 in the *Serving It Safe Participant's Workbook*. Ask participants to take 5 minutes to complete the assessment.

When participants have completed the assessment, review the answers with the group provided on page 388.

## CLEANING AND SANITIZING FOOD CONTACT SURFACES

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that all food contact surfaces are properly cleaned and sanitized

**Scope:** This procedure applies to foodservice employees involved in cleaning and sanitizing food contact surfaces.

**Key Words:** Food contact surface, cleaning, sanitizing

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow manufacturer's instructions regarding the use and maintenance of equipment and use of chemicals for cleaning and sanitizing food contact surfaces. Refer to the NFSMI SOP: Storing and Using Poisonous or Toxic Chemicals.
4. If state or local requirements are based on the *Food Code*, wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment
  - before each use;
  - between uses when preparing different types of raw animal foods, such as eggs, fish, meat, and poultry;
  - between uses when preparing ready-to-eat foods and raw animal foods, such as eggs, fish, meat, and poultry; and
  - any time contamination occurs or is suspected.
5. Wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment using the following procedure.
  1. Wash surface with detergent solution.
  2. Rinse surface with clean water.
  3. Sanitize surface using a sanitizing solution mixed at a concentration specified on the manufacturer's label.
  4. Place wet items in a manner to allow them to air dry.

6. If a three-compartment sink is used, set up and use the sink in the following manner.
  1. In the first compartment, wash with a clean detergent solution at or above 110 °F or at the temperature specified by the detergent manufacturer.
  2. In the second compartment, rinse with clean water.
  3. In the third compartment, sanitize with a sanitizing solution mixed at a concentration specified on the manufacturer's label or by immersing in hot water at or above 171 °F for 30 seconds. Test the chemical sanitizer concentration by using an appropriate test kit.
7. If a dish machine is used, follow the guidelines below.
  - Check with the dish machine manufacturer to verify that the information on the data plate is correct.
  - Refer to the information on the data plate for determining wash, rinse, and sanitization (final) rinse temperatures; sanitizing solution concentrations; and water pressures, if applicable.
  - Follow manufacturer's instructions for use.
  - Ensure that food contact surfaces reach a surface temperature of 160 °F or above if using hot water to sanitize.

**Monitoring:**

Foodservice employees will monitor all areas of cleaning and sanitizing.

1. During all hours of operation, visually and physically inspect food contact surfaces of equipment and utensils to ensure that the surfaces are clean.
2. Monitor a three-compartment sink on a daily basis.
  - Visually monitor that the water in each compartment is clean.
  - Take the water temperature in the first compartment of the sink by using a calibrated thermometer.
  - If using chemicals to sanitize, test the sanitizer concentration by using the appropriate test kit for the chemical.
  - If using hot water to sanitize, use a calibrated thermometer to measure the water temperature. Refer to the NFSMI SOP: Using and Calibrating Thermometers.

3. Monitor a dish machine on a daily basis.
  - Visually monitor that the water and the interior parts of the machine are clean and free of debris.
  - Continually monitor the temperature and pressure gauges. If applicable, ensure that the machine is operating according to the data plate.
  - For a hot water sanitizing dish machine, ensure that food contact surfaces are reaching the appropriate temperature by placing a piece of heat sensitive tape on a smallware item or a maximum registering thermometer on a rack and running the item or rack through the dish machine.
  - For chemical sanitizing dish machine, check the sanitizer concentration on a recently washed food contact surface using an appropriate test kit.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Wash, rinse, and sanitize dirty food contact surfaces. Sanitize food contact surfaces if it is discovered that the surfaces were not properly sanitized. Discard food that comes in contact with food contact surfaces that have not been sanitized properly.
3. Implement corrective actions for a three-compartment sink.
  - Drain and refill compartments periodically and as needed to keep the water clean.
  - Adjust the water temperature by adding hot water until the desired temperature is reached.
  - Add more sanitizer or water, as appropriate, until the proper concentration is achieved.
4. Implement corrective actions for a dish machine.
  - Drain and refill the machine periodically and as needed to keep the water clean.
  - Contact the appropriate individual(s) to have the machine repaired if the machine is not reaching the proper wash temperature indicated on the data plate.
  - For a hot water sanitizing dish machine, retest by running the machine again. If the appropriate surface temperature is still not achieved on the second run, contact the appropriate individual(s) to have the machine repaired. Wash, rinse, and sanitize in the three-compartment sink until the

machine is repaired or use disposable single service/single-use items if a three-compartment sink is not available.

- For a chemical sanitizing dish machine, check the level of sanitizer remaining in the bulk container. Fill, if needed. “Prime” the machine according to the manufacturer’s instructions to ensure that the sanitizer is being pumped through the machine. Retest. If the proper sanitizer concentration level is not achieved, stop using the machine and contact the appropriate individual(s) to have it repaired. Use a three-compartment sink to wash, rinse, and sanitize until the machine is repaired.

**Verification and Record Keeping:**

Foodservice employees will record monitoring activities and any corrective action taken on the Food Contact Surfaces Cleaning and Sanitizing Log. The foodservice manager will verify that foodservice employees have taken the required temperatures and tested the sanitizer concentration by visually monitoring foodservice employees during the shift and reviewing, initialing, and dating the Food Contact Surfaces Cleaning and Sanitizing Log. The log will be kept on file for at least 1 year. The foodservice manager will complete the Food Safety Checklist daily. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## COOKING POTENTIALLY HAZARDOUS FOODS

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that all foods are cooked to the appropriate internal temperature

**Scope:** This procedure applies to foodservice employees who prepare or serve food.

**Key Words:** Cross-contamination, temperatures, cooking

### Instructions:

1. Train foodservice employees on using the procedures in this SOP. Refer to the NFSMI SOP: Using and Calibrating Thermometers.
2. Follow state or local health department requirements.
3. If a recipe contains a combination of meat products, cook the product to the highest required temperature.
4. If state or local health department requirements are based on the *Food Code*, cook products to the following temperatures.
  - a. 145 °F for 15 seconds
    - Seafood, beef, and pork
    - Eggs cooked to order that are placed onto a plate and immediately served
  - b. 155 °F for 15 seconds
    - Ground products containing beef, pork, or fish
    - Fish nuggets or sticks
    - Eggs held on a steam table
    - Cubed or Salisbury steaks
  - c. 165 °F for 15 seconds
    - Poultry
    - Stuffed fish, pork, or beef
    - Pasta stuffed with eggs, fish, pork, or beef (such as lasagna or manicotti)

**d. 135 °F for 15 seconds**

- Fresh, frozen, or canned fruits and vegetables that are going to be held on a steam table or in a hot box

**Monitoring:**

1. Use a clean, sanitized, and calibrated probe thermometer, preferably a thermocouple.
2. Avoid inserting the thermometer into pockets of fat or near bones when taking internal cooking temperatures.
3. Take at least two internal temperatures from each batch of food by inserting the thermometer into the thickest part of the product, which usually is in the center.
4. Take at least two internal temperatures of each large food item, such as a turkey, to ensure that all parts of the product reach the required cooking temperature.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Continue cooking food until the internal temperature reaches the required temperature.

**Verification and Record Keeping:**

Foodservice employees will record product name, time, the two temperatures/times, and any corrective action taken on the Cooking and Reheating Temperature Log.

Foodservice manager will verify that foodservice employees have taken the required cooking temperatures by visually monitoring foodservice employees and preparation procedures during the shift and reviewing, initialing, and dating the temperature log at the close of each day. The Cooking and Reheating Temperature Log is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## COOLING POTENTIALLY HAZARDOUS FOODS

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that all potentially hazardous foods are cooled properly

**Scope:** This procedure applies to foodservice employees who prepare or serve food.

**Key Words:** Cross-contamination, temperatures, cooling, holding

### Instructions:

1. Train foodservice employees on using the procedures in this SOP. Refer to the NFSMI SOP: Using and Calibrating Thermometers.
2. Follow state or local health department requirements.
3. Modify menus, production schedules, and staff work hours to allow for implementation of proper cooling procedures.
4. Prepare and cool food in small batches.
5. Chill food rapidly using an appropriate cooling method.
  - Place food in shallow containers no more than 4 inches deep and uncovered on the top shelf in the back of the walk-in or reach-in cooler.
  - Use a quick-chill unit such as a blast chiller.
  - Stir the food in a container placed in an ice-water bath.
  - Add ice as an ingredient.
  - Separate food into smaller or thinner portions.
  - Pre-chill ingredients and containers used for making bulk items such as salads.
6. If state or local requirements are based on the *Food Code*, chill cooked, hot food from:
  - 135 °F to 70 °F within 2 hours. Take corrective action immediately if food is not chilled from 135 °F to 70 °F within 2 hours.
  - 70 °F to 41 °F or below in remaining time. The total cooling process from 135 °F to 41 °F may not exceed 6 hours. Take corrective action immediately

- if food is not chilled from 135 °F to 41 °F within the 6-hour cooling process.
7. Chill prepared, ready-to-eat foods such as tuna salad and cut melons from 70 °F to 41 °F or below within 4 hours. Take corrective action immediately if ready-to-eat food is not chilled from 70 °F to 41 °F within 4 hours.

**Monitoring:**

1. Use a clean, sanitized, and calibrated probe thermometer to measure the internal temperature of the food during the cooling process.
2. Monitor temperatures of products every hour throughout the cooling process by inserting a probe thermometer into the center of the food and at various locations in the product.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Reheat cooked, hot food to 165 °F for 15 seconds and start the cooling process again using a different cooling method when the food is
  - above 70 °F and 2 hours or less into the cooling process, or
  - above 41 °F and 6 hours or less into the cooling process.
3. Discard cooked, hot food immediately when the food is
  - above 70 °F and more than 2 hours into the cooling process, or
  - above 41 °F and more than 6 hours into the cooling process.
4. Use a different cooling method for prepared, ready-to-eat foods when the food is above 41 °F and less than 4 hours into the cooling process.
5. Discard prepared, ready-to-eat foods when the food is above 41 °F and more than 4 hours into the cooling process.

**Verification and Record Keeping:**

Foodservice employees will record temperatures and corrective actions taken on the Cooling Temperature Log. Foodservice employees will record if there are no foods cooled on any working day by indicating “No Foods Cooled” on the Cooling Temperature Log. The foodservice manager will verify that foodservice employees are cooling food properly by visually monitoring foodservice employees during the shift and reviewing, initialing, and dating the temperature log each working day. The Cooling Temperature Logs are to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## PERSONAL HYGIENE

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent contamination of food by foodservice employees

**Scope:** This procedure applies to foodservice employees who handle, prepare, or serve food.

**Key Words:** Personal hygiene, cross-contamination, contamination

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow your employee health policy. (Note to trainer: An employee health policy is not included in this resource.)
4. Report to work in good health, clean, and dressed in clean attire.
5. Change apron when it becomes soiled.
6. Wash hands properly, frequently, and at the appropriate times.
7. Keep fingernails trimmed, filed, and maintained so that the edges are cleanable and not rough.
8. Avoid wearing artificial fingernails and fingernail polish.
9. Wear single-use gloves if artificial fingernails or fingernail polish are worn.
10. Do not wear any jewelry except for a plain ring such as a wedding band.
11. Treat and bandage wounds and sores immediately. When hands are bandaged, single-use gloves must be worn.
12. Cover a lesion containing pus with a bandage. If the lesion is on a hand or wrist, cover with an impermeable cover such as a finger cot or stall and a single-use glove.
13. Eat, drink, use tobacco, or chew gum only in designated break areas where food or food contact surfaces will not become contaminated.
14. Taste food the correct way.
  - Place a small amount of food into a separate container.
  - Step away from exposed food and food contact surfaces.

- Use a teaspoon to taste the food. Remove the used teaspoon and container to the dish room. Never reuse a spoon that has already been used for tasting.
- Wash hands immediately.

15. Wear suitable and effective hair restraints while in the kitchen.

**Monitoring:**

1. A designated foodservice employee will inspect employees when they report to work to be sure that each employee is following this SOP.
2. The designated foodservice employee will monitor that all foodservice employees are adhering to the personal hygiene policy during all hours of operation.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Discard affected food.

**Verification and Record Keeping:**

The foodservice manager will verify that foodservice employees are following this SOP by visually observing the employees during all hours of operation. The foodservice manager will complete the Food Safety Checklist daily. Foodservice employees will record any discarded food on the Damaged or Discarded Product Log. The Food Safety Checklist and Damaged or Discarded Product Logs are to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## PREVENTING CROSS-CONTAMINATION DURING STORAGE AND PREPARATION

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To reduce foodborne illness by preventing unintentional contamination of food

**Scope:** This procedure applies to anyone who is responsible for receiving, storing, preparing, and serving food.

**Key Words:** Cross-contamination, preparation, contamination, storage, receiving

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Wash hands properly. Refer to the NFSMI SOP: Washing Hands.
4. Avoid touching ready-to-eat food with bare hands. Refer to the NFSMI SOP: Using Suitable Utensils When Handling Ready-To-Eat Foods.
5. Separate raw animal foods, such as eggs, fish, meat, and poultry, from ready-to-eat foods, such as lettuce, cut melons, and lunch meats during receiving, storage, and preparation.
6. Separate different types of raw animal foods, such as eggs, fish, meat, and poultry, from each other, except when combined in recipes.
7. Store raw animal foods in refrigerators or walk-in coolers by placing the raw animal foods on shelves in order of cooking temperatures with the raw animal food requiring the highest cooking temperature, such as chicken, on the lowest shelf.
8. Separate unwashed fruits and vegetables from washed fruits and vegetables and other ready-to-eat foods.
9. Use only dry, cleaned, and sanitized equipment and utensils. Refer to the NFSMI SOP: Cleaning and Sanitizing Food Contact Surfaces for proper cleaning and sanitizing procedure.
10. Touch only those surfaces of equipment and utensils that will not come in direct contact with food.

11. Place food in covered containers or packages, except during cooling, and store in the walk-in refrigerator or cooler.
12. Designate an upper shelf of a refrigerator or walk-in cooler as the “cooling” shelf. Uncover containers of food during the initial quick cool-down phase to facilitate cooling.
13. Clean the exterior surfaces of food containers, such as cans and jars, of visible soil before opening.
14. Store damaged goods in a separate location.

**Monitoring:**

A designated foodservice employee will continually monitor food storage and preparation to ensure that food is not cross-contaminated.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Separate foods found improperly stored.
3. Discard ready-to-eat foods that are contaminated by raw eggs, raw fish, raw meat, or raw poultry.

**Verification and Record Keeping:**

The foodservice manager will visually observe that employees are following these procedures and taking all necessary corrective actions during all hours of operation. The foodservice manager will periodically check the storage of foods during hours of operation and complete the Food Safety Checklist daily. The Food Safety Checklist will be kept on file for a minimum of 1 year. Foodservice employees will document any discarded food on the Damaged and Discarded Product Log. The foodservice manager will verify that appropriate corrective actions are being taken by reviewing, initialing, and dating the Damaged and Discarded Product Log each day. The Damaged and Discarded Product Log is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## RECEIVING DELIVERIES

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To ensure that all food is received fresh and safe when it enters the foodservice operation and to transfer food to proper storage as quickly as possible

**Scope:** This procedure applies to foodservice employees who handle, prepare, or serve food.

**Key Words:** Cross-contamination, temperatures, receiving, holding, frozen goods, delivery

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Schedule deliveries to arrive at designated times during operational hours.
4. Post the delivery schedule, including the names of vendors, days and times of deliveries, and drivers' names.
5. Establish a rejection policy to ensure accurate, timely, consistent, and effective refusal and return of rejected goods.
6. Organize freezer and refrigeration space, loading docks, and store rooms before deliveries.
7. Gather product specification lists and purchase orders, temperature logs, calibrated thermometers, pens, flashlights, and clean loading carts before deliveries. Refer to the NFSMI SOP: Using and Calibrating Thermometers.
8. Keep receiving area clean and well lighted.
9. Do not touch ready-to-eat foods with bare hands.
10. Determine whether foods will be marked with the date arrival or the "use by" date and mark accordingly upon receipt.
11. Compare delivery invoice against products ordered and products delivered.
12. Transfer foods to their appropriate locations as quickly as possible.

**Monitoring:**

1. Inspect the delivery truck when it arrives to ensure that it is clean, free of putrid odors, and organized to prevent cross-contamination. Be sure refrigerated foods are delivered on a refrigerated truck.
2. Check the interior temperature of refrigerated trucks.
3. Confirm vendor name, date and time of delivery, as well as driver's identification before accepting delivery. If driver's name is different from what is indicated on the delivery schedule, contact the vendor immediately.
4. Check frozen foods to ensure that they are all frozen solid and show no signs of thawing and refreezing, such as the presence of large ice crystals or liquids on the bottom of cartons.
5. Check the temperature of refrigerated foods.
  - a. For fresh meat, fish, and poultry products, insert a clean and sanitized thermometer into the center of the product to ensure a temperature of 41 °F or below. The temperature of milk should be at or below 45 °F.
  - b. For packaged products, insert a food thermometer between two packages being careful not to puncture the wrapper. If the temperature exceeds 41 °F, it may be necessary to take the internal temperature before accepting the product.
  - c. For eggs, the interior temperature of the truck should be at or below 45 °F.
6. Check dates of milk, eggs, and other perishable goods to ensure safety and quality.
7. Check the integrity of food packaging.
8. Check the cleanliness of crates and other shipping containers before accepting products. Reject foods that are shipped in dirty crates.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Reject the following:
  - frozen foods with signs of previous thawing;
  - cans that have signs of deterioration, such as swollen sides or ends, flawed seals or seams, dents, or rust;
  - punctured packages;
  - foods with out-dated expiration dates; and
  - foods that are out of the safe temperature zone or deemed unacceptable by the established rejection policy.

**Verification and Record Keeping:**

Record the temperature and the corrective action on the delivery invoice or on the Receiving Log. The foodservice manager will verify that foodservice employees are receiving products using the proper procedure by visually monitoring receiving practices during the shift and reviewing the Receiving Log at the close of each day. Receiving Logs are kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## REHEATING POTENTIALLY HAZARDOUS FOODS

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that all foods are reheated to the appropriate internal temperature

**Scope:** This procedure applies to foodservice employees who prepare or serve food.

**Key Words:** Cross-contamination, temperatures, reheating, holding, hot holding

### Instructions:

1. Train foodservice employees on using the procedures in this SOP. Refer to the NFSMI SOP: Using and Calibrating Thermometers.
2. Follow state or local health department requirements.
3. If state or local requirements are based on the *Food Code*, heat processed, ready-to-eat foods from a package or can such as canned green beans or prepackaged breakfast burritos, to an internal temperature of at least 135 °F for 15 seconds for hot holding.
4. Reheat the following products to 165 °F for 15 seconds.
  - Any food that is cooked, cooled, and reheated for hot holding
  - Leftovers reheated for hot holding
  - Products made from leftovers, such as soup
  - Precooked, processed foods that have been previously cooled
5. Reheat food for hot holding in the following manner if using a microwave oven:
  - Heat processed, ready-to-eat foods from a package or can to at least 135 °F for 15 seconds.
  - Heat leftovers to 165 °F for 15 seconds.
  - Rotate (or stir) and cover foods while heating.
  - Allow to sit for 2 minutes after heating.
6. Reheat all foods rapidly. The total time the temperature of the food is between 41 °F and 165 °F may not exceed 2 hours.
7. Serve reheated food immediately or transfer to an appropriate hot holding unit.

**Monitoring:**

1. Use a clean, sanitized, and calibrated probe thermometer.
2. Take at least two internal temperatures from each pan of food.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Continue reheating and heating food if the internal temperature does not reach the required temperature.

**Verification and Record Keeping:**

Foodservice employees will record product name, time, the two temperatures/times, and any corrective action taken on the Cooking and Reheating Temperature Log. Foodservice manager will verify that foodservice employees have taken the required reheating temperatures by visually monitoring foodservice employees during the shift and reviewing, initialing, and dating the Cooking and Reheating Temperature Log at the close of each day. The temperature logs are kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## SERVING FOOD

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that all foods are served in a sanitary manner

**Scope:** This procedure applies to foodservice employees who serve food.

**Key Words:** Cross-contamination, service

### Instructions:

1. Train foodservice employees on using the procedures in this SOP. Refer to the NFSMI SOP: Using and Calibrating Thermometers.
2. Follow state or local health department requirements.
3. Follow the employee health policy. (Employee health policy is not included in this resource.)
4. Wash hands before putting on gloves, each time the gloves are changed, when changing tasks, and before serving food with utensils. Refer to the NFSMI SOP: Washing Hands.
5. Avoid touching ready-to-eat foods with bare hands. Refer to the NFSMI SOP: Using Suitable Utensils when Handling Ready-To-Eat Foods.
6. Handle plates by the edge or bottom; cups by the handle or bottom; and utensils by the handles.
7. Store utensils with the handles up or by other means to prevent contamination.
8. Hold potentially hazardous food at the proper temperature. Refer to the NFSMI SOP: Holding Hot and Cold Potentially Hazardous Foods.
9. Serve food with clean and sanitized utensils.
10. Store in-use utensils properly.
11. Date mark and cool potentially hazardous foods or discard leftovers. Refer to the NFSMI SOPs: Date Marking Ready-to-Eat, Potentially Hazardous Foods and Cooling Potentially Hazardous Foods.

### Monitoring:

A designated foodservice employee will visually observe that food is being served in a manner that prevents contamination during all hours of service.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Replace improperly handled plates, cups, or utensils.
3. Discard ready-to-eat food that has been touched with bare hands.
4. Follow the corrective actions identified in the NFSMI SOPs: Washing Hands; Using Suitable Utensils When Handling Ready-To-Eat Foods; Date Marking Ready-to-Eat, Potentially Hazardous Foods; Cooling Potentially Hazardous Foods; and Holding Hot and Cold Potentially Hazardous Foods.

**Verification and Record Keeping:**

The foodservice manager will periodically check the storage and use of utensils during service. In addition, the foodservice manager will complete the Food Safety Checklist daily. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## USING AND CALIBRATING THERMOMETERS

(Sample USDA/NFSMI Standard Operating Procedure)



**Purpose:** To prevent foodborne illness by ensuring that the appropriate type of thermometer is used to measure internal product temperatures and that thermometers used are correctly calibrated for accuracy

**Scope:** This procedure applies to foodservice employees who prepare, cook, and cool food.

**Key Words:** Thermometers, calibration

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow the food thermometer manufacturer's instructions for use. Use a food thermometer that measures temperatures from 0 °F (-18 °C) to 220 °F (104 °C) and is appropriate for the temperature being taken. For example:
  - Temperatures of thin products, such as hamburgers, chicken breasts, pizza, filets, nuggets, hot dogs, and sausage patties, must be taken using a thermistor or thermocouple with a thin probe.
  - Bimetallic, dial-faced stem thermometers are accurate only when measuring temperatures of thick foods. They may not be used to measure temperatures of thin foods. A dimple mark located on the stem of the thermometer indicates the maximum food thickness that can be accurately measured.
  - Use only oven-safe, bimetallic thermometers when measuring temperatures of food while cooking in an oven.
4. Have food thermometers easily-accessible to foodservice employees during all hours of operation.
5. Clean and sanitize food thermometers before each use. Refer to the NFSMI SOP: Cleaning and Sanitizing Food Contact Surfaces for the proper procedure to follow.
6. Store food thermometers in an area that is clean and where they are not subject to contamination.

### Monitoring:

1. Foodservice employees will use either the ice-point method or boiling-point method to verify the accuracy of food thermometers. This is known as calibration of the thermometer.
2. To use the ice-point method:
  - Insert the thermometer probe into a cup of crushed ice.
  - Add enough cold water to remove any air pockets that might remain.
  - Allow the temperature reading to stabilize before reading temperature.
  - Temperature measurement should be 32 °F ( $\pm 2$  °F) [or 0 °C ( $\pm 1$  °C)]. If not, adjust according to manufacturer's instructions.
3. To use the boiling-point method:
  - Immerse at least the first 2 inches of the probe into boiling water.
  - Allow the temperature reading to stabilize before reading temperature.
  - Reading should be 212 °F ( $\pm 2$  °F) [or 100 °C ( $\pm 1$  °C)]. This reading may vary at higher altitudes. If adjustment is required, follow manufacturer's instructions.
4. Foodservice employees will check the accuracy of the food thermometers
  - at regular intervals (at least once per week),
  - if dropped,
  - if used to measure extreme temperatures such as in an oven, and
  - whenever accuracy is in question.

**Corrective Action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. For an inaccurate, bimetallic, dial-faced thermometer, adjust the temperature by turning the dial while securing the calibration nut (located just under or below the dial) with pliers or a wrench.
3. For an inaccurate, digital thermometer with a reset button, adjust the thermometer according to manufacturer's instructions.
4. If an inaccurate thermometer cannot be adjusted on-site, discontinue using it, and follow manufacturer's instructions for having the thermometer calibrated.
5. Retrain employees who are using or calibrating food thermometers improperly.

**Verification and Record Keeping:**

Foodservice employees will record the calibration temperature and any corrective action taken, if applicable, on the Thermometer Calibration Log each time a thermometer is calibrated. The foodservice manager will verify that foodservice employees are using and calibrating thermometers properly by making visual observations of the employees during the calibration process and all operating hours. The foodservice manager will review and initial the Calibration Log daily. The Calibration Log will be kept on file a minimum of 1 year. The foodservice manager will complete the Food Safety Checklist daily. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.



## WASHING HANDS

(Sample USDA/NFSMI Standard Operating Procedure)

**Purpose:** To prevent foodborne illness by contaminated hands

**Scope:** This procedure applies to anyone who handles, prepares, and serves food.

**Key Words:** Hand washing, cross-contamination

### Instructions:

1. Train foodservice employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Post hand washing signs or posters in a language understood by all foodservice staff near all hand washing sinks, in food preparation areas, and restrooms.
4. Use designated hand washing sinks for hand washing only. Do not use food preparation, utility, or dishwashing sinks for hand washing.
5. Provide warm, running water, soap, and a means to dry hands. Provide a waste container at each hand washing sink or near the doors in restrooms.
6. Keep hand washing sinks accessible anytime employees are present.
7. Wash hands
  - before starting work;
  - during food preparation;
  - when moving from one food preparation area to another;
  - before putting on or changing gloves;
  - after using the toilet;
  - after sneezing, coughing, or using a handkerchief or tissue;
  - after touching hair, face, or body;
  - after smoking, eating, drinking, or chewing gum or tobacco;
  - after handling raw meats, poultry, or fish;
  - after any clean-up activity such as sweeping, mopping, or wiping counters;
  - after touching dirty dishes, equipment, or utensils;
  - after handling trash;
  - after handling money; and
  - after any time the hands may become contaminated.
8. Follow proper hand washing procedures as indicated below:
  1. Wet hands and forearms with warm, running water at least 100 °F and apply soap.

2. Scrub lathered hands and forearms, under fingernails, and between fingers for at least 10-15 seconds. Rinse thoroughly under warm, running water for 5-10 seconds.
  3. Dry hands and forearms thoroughly with single-use paper towels.
  4. Dry hands for at least 30 seconds if using a warm-air hand dryer.
  5. Turn off water using paper towels.
  6. Use paper towel to open door when exiting the restroom.
9. Follow FDA recommendations when using hand sanitizers. These recommendations are as follows.
- Use hand sanitizers only after hands have been properly washed and dried.
  - Use only hand sanitizers that comply with the *Food Code*. Confirm with the manufacturers that the hand sanitizers used meet these requirements.
  - Use hand sanitizers in the manner specified by the manufacturer.

**Monitoring:**

1. A designated employee will visually observe the hand washing practices of the foodservice staff during all hours of operation.
2. The designated employee will visually observe that hand washing sinks are properly supplied during all hours of operation.

**Corrective action:**

1. Retrain any foodservice employee found not following the procedures in this SOP.
2. Ask employees who are observed not washing their hands at the appropriate times or using the proper procedure to wash their hands immediately.

**Verification and Record Keeping:**

The foodservice manager will complete the Food Safety Checklist daily to indicate that monitoring is being conducted as specified. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

**Date Implemented:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Reviewed:** \_\_\_\_\_ **By:** \_\_\_\_\_

**Date Revised:** \_\_\_\_\_ **By:** \_\_\_\_\_

Source: U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2009). HACCP-based standard operating procedures (SOPs). University, MS: Author.

## LESSON 6, ACTIVITY 2

### *Process Approach Overview* Video Clip Instructions



Prior to the seminar, download the *Process Approach Overview* video clip to your hard drive. (This video clip is part of the *Developing a Food Safety Program Using the Process Approach* video series.) Go to [www.nfsmi.org](http://www.nfsmi.org) to download the video. When you get to the Web page, go to the **Document Library**. In the **Education and Training Resources by Title** listing, find the Serving It Safe, 3<sup>rd</sup> Edition link. On the Serving It Safe page, select the video, *Video Clip Process Approach Overview*. Use the WMV version to download and save to your computer. Have this clip ready to play on your computer before the seminar begins.

If you have any problems accessing the video, please contact the NFSMI at 1-800-321-3054.

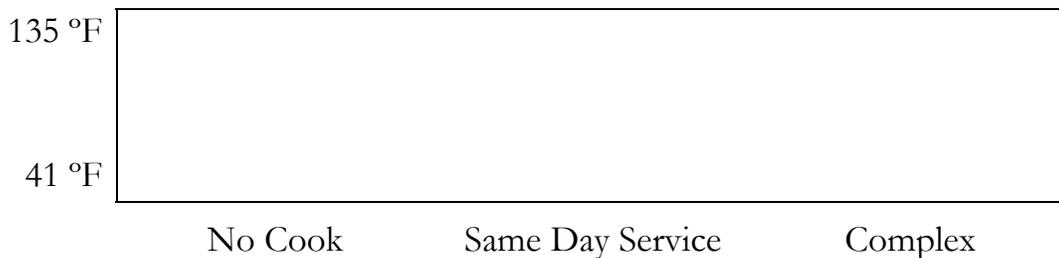
## LESSON 6, ACTIVITY 2

### *Process Approach Overview*

#### Video Viewing Guide



1. The \_\_\_\_\_ approach is recommended for developing a food safety program.
2. Draw what happens to the temperatures for foods in each of the three process categories.



3. List the menu item that was used as an example of a
  - a. No Cook Item \_\_\_\_\_
  - b. Same Day Service Item \_\_\_\_\_
  - c. Complex Food Preparation Item \_\_\_\_\_
4. List the steps where temperature should be controlled.  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  
\_\_\_\_\_, \_\_\_\_\_

#### **Key Points for Developing a Food Safety Program**

1. A food safety plan is needed at each site where food is prepared and served.
2. Each site must be evaluated.
3. Menu items should be sorted into process categories.
4. Temperatures must be controlled at each process step.
5. It is important to take and record temperatures.

## LESSON 6, ACTIVITY 2

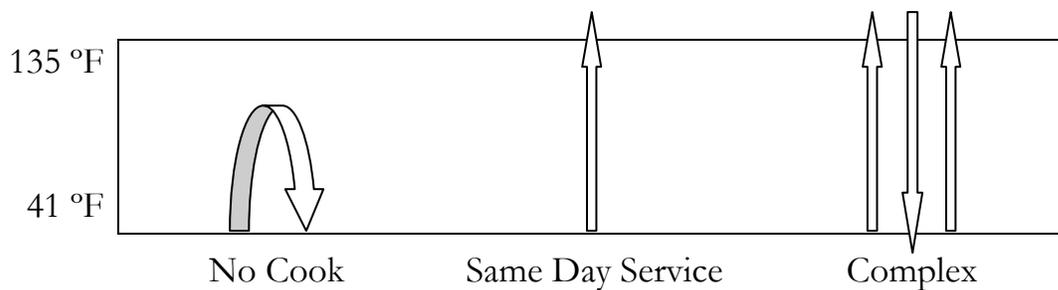
### Process Approach Overview

#### Video Viewing Guide

(Answers for Trainers)



1. The process approach is recommended for developing a food safety program.
2. Draw what happens to the temperatures for foods in each of the three process categories.



3. List the menu item that was used as an example of a
  - a. No Cook Item tuna salad
  - b. Same Day Service Item taco salad
  - c. Complex Food Preparation Item leftovers
4. List the steps where temperature should be controlled.  
receiving, storing, preparing,  
cooking, cooling, reheating,  
hot holding, serving

### Key Points for Developing a Food Safety Program

1. A food safety plan is needed at each site where food is prepared and served.
2. Each site must be evaluated.
3. Menu items should be sorted into process categories.
4. Temperatures must be controlled at each process step.
5. It is important to take and record temperatures.

## LESSON 6, ACTIVITY 4

### Group Menu Items by Process Category



**Directions:** Place a check mark in the appropriate column of the Food Preparation Process for the menu item as it is prepared in your operation. If you have more than one school present, select one school to complete this activity.

Menu Item	No Cook	Same Day Service	Complex Food Preparation
Egg patty			
Milk			
Nachos with meat and cheese			
Stacked turkey with Swiss on bun			
Seasoned corn			
Baked potato wedges			
Breakfast pizza			
Hot dogs			
Lettuce			
Spaghetti sauce			
Tacos			
Bean burritos			
Cole slaw			
Baked beans			
French toast sticks			
Sliced baked turkey			
Mashed potatoes			
Green garden salad			
Tuna salad sandwiches			
BBQ pork sandwich			
Scrambled eggs			
Fresh apple			
Hot rolls			



## LESSON 6, ACTIVITY 4

### Group Menu Items by Process Category (Answers for Trainers)



Menu Item	No Cook	Same Day Service	Complex Food Preparation
Egg patty		X	
Milk	X		
Nachos with meat and cheese		X	X
Stacked turkey with Swiss on bun	X		X
Seasoned corn		X	
Baked potato wedges		X	
Breakfast pizza		X	
Hot dogs		X	
Lettuce	X		
Spaghetti sauce		X	X
Tacos		X	X
Bean burritos		X	
Cole slaw	X		
Baked beans		X	
French toast sticks		X	
Sliced baked turkey	X		X
Mashed potatoes		X	
Green garden salad	X		
Tuna salad sandwiches	X		
BBQ pork sandwich		X	X
Scrambled eggs		X	
Fresh apple*			
Hot rolls*			

\*Time and temperature controls are not needed for these food items.

**Note to trainer:** The following food items may fall under more than one category depending on the specific preparation process.

Nachos with meat and cheese—same day or complex, depending on practices followed in specific foodservice operation

Stacked turkey with Swiss on bun—could be same day or complex if turkey was cooked and cooled and sliced in the operation

Spaghetti sauce—could be same day or complex, depending when the meat is cooked

Tacos—could be same day or complex, depending when the meat is cooked

Bean burritos—same day if it is a frozen product

Tuna salad sandwiches—no cook (if eggs are purchased precooked); complex if eggs are cooked and cooled prior to service

BBQ pork sandwich—same day or complex if pork roasts are cooked on site, cooled, and then made into BBQ

## LESSON 6: FOOD SAFETY PROGRAMS IN SCHOOLS PRE- AND POST-LESSON ASSESSMENT

1. What statement is **true** about a food safety program based on HACCP principles?
  - a. It is a proactive program to prevent foodborne illness.
  - b. It is a reactive program developed to prevent foodborne illness.
  - c. It is based on results of health department inspections.
  - d. It is designed to be the responsibility of the district foodservice director.
  
2. Which approach requires that foodservice operators group menu items according to the number of times they go through the temperature danger zone?
  - a. HACCP approach
  - b. Process Approach
  - c. Food safety approach
  - d. Cooking approach
  
3. For no cook items, which step is temperature control considered most important?
  - a. Storing
  - b. Preparing
  - c. Cold holding
  - d. Serving
  
4. Menu items that go through the temperature danger zone 2-3 times are called
  - a. No Cook items,
  - b. Same Day Service items,
  - c. Complex Food Preparation items, or
  - d. Cooked items.
  
5. Menu items such as pizza and chicken nuggets would be categorized as
  - a. No Cook items,
  - b. Same Day Service items,
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## LESSON 6: FOOD SAFETY PROGRAMS IN SCHOOLS PRE- AND POST-LESSON ASSESSMENT ANSWERS

1. What statement is **true** about a food safety program based on HACCP principles?
  - a. It is a proactive program to prevent foodborne illness.
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## RESOURCES AND REFERENCES

### RESOURCES

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## **SEMINAR WRAP UP**

<b>Preparation Checklist</b>	<b>392</b>
<b>Lesson-at-a-Glance</b>	<b>393</b>
<b>Lesson Plan</b>	<b>394</b>
<b>Pre- and Post-Lesson Assessment</b>	<b>396</b>
<b>Answers to Pre- and Post-Lesson Assessment</b>	<b>402</b>



## PREPARATION CHECKLIST

**Instructions:** Use this preparation checklist to get ready for the Seminar Wrap Up. Keep track of your progress by checking off tasks as they are completed.

### Seminar Wrap Up Preparation Checklist

Done



#### Prepare for the Seminar Wrap Up.

- Carefully read the lesson plan.
- Review wrap-up activity.
- Make copies of the Pre- and Post-Session Assessment.\*

**\*Note:** Assessments are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.

#### Gather materials.

- Pens (one for each participant)
- Pencils (one for each participant)

#### On seminar day:

- Place pens or pencils on tables (one for each participant).
- On the instructor's table, place the following:
  - Pre- and Post-Seminar Assessment (if *Serving It Safe Participant's Workbook* is not provided)

## LESSON AT-A-GLANCE

<b>Time</b>	<b>Topic</b>	<b>Task</b>	<b>Materials</b>
10 minutes	<b>Guide the Seminar Wrap-Up</b>	Guide the wrap up.	Previous flip chart pages from prior lessons.
10 minutes	<b>Pre- and Post-Session Assessment</b>		See page 396.  Lesson assessments are included in the <i>Serving It Safe Seminar Participant's Workbook</i> . If the <i>Participant's Workbook</i> is provided to participants, copies are not necessary.
5 minutes	<b>Certificates of Completion</b>	Distribute Certificates of Completion to all participants.	Certificates of Completion



## Seminar Wrap Up: Lesson Plan

### Seminar Wrap Up

(25 minutes)

**SAY:** Thank you for taking part in the *Serving It Safe Seminar*. We have discussed food safety, why it is important, how we can have a food-safe facility, and how we can prevent foodborne illness in the future. Congratulations on what you have accomplished.

**SAY:** To review what we have learned, let's discuss the key points of each session.

**Do:** Complete the Wrap-Up Activity.



### Seminar Wrap-Up Activity

#### Materials needed:

- Flip chart pages from previous sessions.
1. Conduct a 'Gallery Walk' of all the flip chart pages that have been posted on the walls during the seminar.
  2. Gather the participants around the first set of flip chart paper (beginning with Session 1).
  3. Walk from the Session 1 set of flip chart paper to Session 2 and so on. As you go, briefly summarize what was taught in each session and what they have learned. (Have the participants move around the room with you.)
  4. Ask each participant to state the most important food safety concept that they have learned.

**SAY:** To review in even more detail, you'll now take the Post-Seminar Assessment to see how much you have learned and retained.

- Do:** Pass out the Pre- and Post-Seminar Assessment. (Assessments are included in the *Serving It Safe Seminar Participant's Workbook*. If the *Participant's Workbook* is provided to participants, copies are not necessary.) Allow 10 minutes for the participants to complete the assessment. Review the answers with them.
- SAY:** To commemorate your completion of this seminar, you will now receive your Certificate of Completion. Keep this in your files so that you have a record of completing the *Serving It Safe Seminar*.
- Do:** Distribute the Certificates of Completion. Congratulate and thank them again and dismiss the class.



## PRE- AND POST-SEMINAR ASSESSMENT

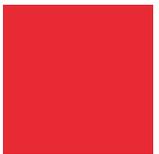
1. Which of the following statements is **true** about food safety?
  - a. Foodservice employees have no control over the safety of food served.
  - b. Children are young and healthy, so they are not likely to get foodborne illnesses.
  - c. A food safety program must be maintained in all school buildings.
  - d. It is difficult to follow good food handling techniques.
  
2. A foodborne illness outbreak is said to occur when
  - a. one or more people become ill after eating in the same foodservice operation,
  - b. two or more people become ill after eating the same food,
  - c. five or more people become ill after eating the same food, or
  - d. at least 10 people become ill after eating the same food.
  
3. What is one important method for preventing biological hazards?
  - a. Clean and sanitize food contact surfaces.
  - b. Store chemicals in a separate storage area.
  - c. Wear disposable plastic gloves over bandages on hands.
  - d. Remove all nail polish before working with food.
  
4. What is one important method for preventing chemical hazards?
  - a. Avoid wearing jewelry that could fall into food.
  - b. Control time that food is in the temperature danger zone.
  - c. Test sanitizing solutions to make sure they are at correct concentrations.
  - d. Wash hands after coughing or sneezing.
  
5. Which of the following temperature ranges represents the temperature danger zone?
  - a. 35 °F-140 °F
  - b. 50 °F-70 °F
  - c. 41 °F-135 °F
  - d. 50 °F-140 °F



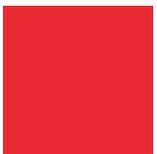
6. Which of the following practices has been identified as a main cause of foodborne illnesses?
  - a. Purchasing food from approved sources
  - b. Using written standard operating procedures
  - c. Abusing the time-temperature relationship
  - d. Checking temperatures of food during cooking
  
7. Cross-contamination can occur when
  - a. ready-to-eat meats are stored on the top shelf in the refrigerator,
  - b. hands are washed between tasks,
  - c. color-coded cutting boards are used, or
  - d. a new can of peaches is added to leftover peaches and put on the salad bar.
  
8. How long should employees wash their hands?
  - a. 10 seconds
  - b. 20 seconds
  - c. 30 seconds
  - d. 40 seconds
  
9. Which of the following statements is **true** about taking food temperatures?
  - a. A bimetallic stemmed thermometer may be used for taking temperatures of hamburger patties.
  - b. Infrared thermometers can be used for taking cooking temperatures.
  - c. Thermometers rarely need to be calibrated.
  - d. Temperatures should be taken in multiple locations for foods such as casseroles.
  
10. Which of the following statements is **true** about thermometer calibration?
  - a. Thermometers should be calibrated each time they are dropped.
  - b. Thermometers should be calibrated at least monthly.
  - c. Thermometers do not need to be calibrated because they are guaranteed to be accurate.
  - d. Cold water calibration is the only acceptable method.



11. Bacteria that can be harmful is called
  - a. spoilage bacteria,
  - b. pathogen,
  - c. parasite, or
  - d. virus.
  
12. Which of the following actions will kill harmful bacteria?
  - a. Freezing the food for 4 hours
  - b. Heating the food at a low temperature for a long time
  - c. Keeping the food out of the temperature danger zone
  - d. Cooking the food to the required internal temperature for 15 seconds
  
13. What is the most common cause of foodborne illness?
  - a. Bacteria
  - b. Mold
  - c. Virus
  - d. Yeast
  
14. Which bacteria could cause hemolytic uremic syndrome in young children?
  - a. *Campylobacter jejuni*
  - b. *Escherichia coli* O157:H7
  - c. *Listeria monocytogenes*
  - d. *Staphylococcus aureus*
  
15. If you observe mold on food, what recommendation should you follow?
  - a. Cut away the moldy area and use the remainder of the food.
  - b. Discard the food.
  - c. Use the food in something that will be cooked.
  - d. Use the food if the mold spots are small.
  
16. Which of the following practices supports pest infestation and growth in a foodservice operation?
  - a. Removing all cardboard boxes from the facility
  - b. Cleaning grease traps often
  - c. Storing food items on the floor
  - d. Installing air doors at entrances



17. A three-compartment sink should be set up and used properly. Which statement is **true** about using a three-compartment sink?
- a. Set up compartments to wash, rinse, and sanitize.
  - b. Set up compartments to rinse, wash, and sanitize.
  - c. Prepare sanitizing solution daily.
  - d. Use any water temperature for mixing detergent and sanitizer.
18. What type of thermometer can be used to test final rinse temperatures?
- a. Meat thermometer
  - b. Self-adhering temperature sensing label
  - c. T-Stick®
  - d. Bi-metallic stemmed thermometer
19. When using a chemical dish machine, which of the following statements is **true**?
- a. Chemical solution concentrations are different than those used for manual sanitizing.
  - b. Sanitizing solution should be tested at the end of a rinse cycle.
  - c. Testing of sanitizing solution is not necessary because the dish machine is serviced routinely.
  - d. It is not necessary to document chemical sanitizer concentration.
20. Which one of the following provides important information about the safety of using a chemical?
- a. Standard operating procedures
  - b. Training manual in school district
  - c. Material Safety Data Sheet
  - d. Cleaning schedules
21. Which of the following methods of thawing is acceptable?
- a. Place frozen food in the refrigerator on the bottom shelf.
  - b. Place frozen food in room temperature water.
  - c. Place frozen food in the refrigerator on the top shelf.
  - d. Thaw frozen food in hot water, and then cook immediately.



22. What is the recommended cooking temperature for a raw hamburger patty based on the *Food Code*?
- 135 °F
  - 145 °F
  - 155 °F
  - 165 °F
23. What are the recommended holding temperatures for cold and hot foods based on the *Food Code*?
- 41 °F or below for cold foods, 135 °F or above for hot foods
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24. Which of the following statements is **true** about proper cooling of food?
- Plastic containers cool more quickly than stainless steel.
  - Putting hot food immediately into a freezer is a best practice.
  - Divide food into the smallest quantity possible before cooling.
  - Using the two-step cooling method, total time is more important than temperature.
25. Which of the following statements is **most true** about reheating leftover foods?
- Reheat to 155 °F for 20 seconds.
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## Pre- and Post-Seminar Assessment Answers

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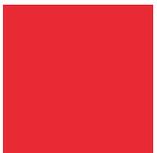
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