Food Safety for Child Nutrition Programs: Train-the-Trainer

Instructor Manual
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Introduction to Food Safety for Child Nutrition Programs

The purpose of this Instructor Manual is to provide school nutrition program directors with the instructional materials needed for teaching the “Food Safety for Child Nutrition Programs” (FSCNP) course. This manual is supplemental to the FSCNP Participant Manual, which should be provided to each school nutrition staff member participating in the course, and the “Food Safety for Child Nutrition Programs” online course, which can be accessed at http://cns.ucdavis.edu/content/safety/default.htm. This site contains a video, transcript, and outline for each of the five lessons.

In addition to the online course lessons, a supplemental lesson about food allergies and food intolerances is available. This lesson consists of a PowerPoint and script, and can be downloaded from the UC Davis Center for Nutrition in Schools website at http://cns.ucdavis.edu/training/fs.html.

The Instructor Manual contains the following for each lesson:

- Lesson Overview
- Vocabulary
- Activities
- Discussion Topics
- Presentation Topics
- Worksheet

Suggested points to pause and discussion questions, as well as blanks for incorporating your own, are included with each lesson.

In addition to the above, the Instructor Manual also contains:

- Sample course agendas
- Preparation checklists
- Foundations for Training Excellence sections
- Information about food safety exam options

The Participant Manual contains the following for each lesson:

- Lesson Overview
- Vocabulary
- Worksheet
- Course Slides
The slides for the online course provide a great deal of information, however not everything that might be on the food safety manager exam is included in the online course videos.

Additional information that is in the appendix is highlighted throughout the manuals. “Did you know?” boxes are also integrated and identify other key facts and information that might appear on a food safety manager exam. Participants should be instructed to review the material referred to in these boxes to help prepare for the exam. These boxes also provide great opportunities to pause the lessons to review and discuss some of the other information included in the Participant Manual.

This course is designed to be flexible to fit the needs of you and your staff. The five video lessons can be watched either as a group, or individually. The lessons can be paused in order to work on the activities, or activities can be done after the lessons are completed.

The materials provided in the Instructor Manual may be used in a variety of ways to enhance the FSCNP, as demonstrated by the three sample course agendas provided. For additional information, you may contact the Cal-Pro-NET Center at the Center for Nutrition in Schools located in the Department of Nutrition, University of California, Davis. Contact information can be found on the website at http://cns.ucdavis.edu.
Description of Each Lesson Section in this Manual

Lesson Overview

The lesson overview contains lesson competencies, performance standards, and a brief list of topics included in the lesson.

Vocabulary

A list of important vocabulary terms is included in each lesson.

Activities

Each lesson contains one or more activities. While we have placed the activities in lessons with which they match well; you may choose to move activities around to other lessons to fit the needs of you and your staff.

Included with the activities are suggested points to pause the online course lessons. This is for those who choose to watch the online course lessons as a group and wish to stop periodically to complete activities.

Discussion Topics

The discussion topics included with each lesson are so that participants have a chance to talk over and share with one another what they know about food safety, their experiences, and to get them thinking about key points in each lesson.

Presentation Topics

These presentation topics are to be used to guide participants in creating group presentations, five to ten minutes, in length about various important areas of food safety in order to reinforce concepts. Each presentation topic has several questions the groups should address in their presentation. After each group presents, the instructor or participants should also offer additional information that may have not been included in the presentation.

Worksheet

To help keep participants engaged, each lesson has a worksheet to be completed while watching the online course video. It is recommended that participants remove these pages from the Participant Manual so that they can follow along with the slides in their manual and still be able to fill in answers to the questions. If watching the videos as a group, pausing periodically to allow participants to complete portions of the worksheet before moving on may be beneficial. These worksheets can also be completed at the end of the lesson to evaluate comprehension.
Materials Available Online

There are two places to obtain materials to use in teaching this course:


Available on this website:

- Instructor Manual
- Participant Manual
- Online course videos
- PDF files of lesson slides
- PDF files of lesson script
- Lesson PowerPoint slides
- Supplemental Lesson: Food Allergies and Food Intolerances PowerPoint slides
- Supplemental Lesson: Food Allergies and Food Intolerances script
- PowerPoint Jeopardy game
- Jeopardy game key
Using the Online Course

To access the online course, visit http://cns.ucdavis.edu/content/safety/default.htm.

You will see the following screen. Use the buttons indicated to start the lesson. Each lesson has downloadable PDF files of the slides (labeled “Outline”) and downloadable scripts (labeled “Transcript”) that can be used to follow along with the videos.
Once the video has started playing, use the buttons on the screen for navigation. You can pause the lesson at any time, and also skip forward or backward as needed.
Sample Course Agendas

This course is designed to be flexible to fit the needs of you and your staff. The five video lessons online can be watched either as a group, or individually. The lessons can be paused in order to complete activities, or activities can be done after the lessons are completed. Most of the activities are designed to be completed in groups, but many can be done individually as well. The class can also be structured in a way that meets the time constraints you may have in your program either by breaking the class into several shorter sessions, or fewer, longer sessions.

Here are some sample course agendas that may be helpful in planning your Food Safety course. Breaks are included in some of the sample agendas, but do not contribute to the number of hours of instruction. These are only suggestions; there are many more possible ways to conduct this course.

Option 1:
- This option consists of two, five-hour sessions split over two days.
- Participants will watch the online course lessons as a class.
- The online lessons are paused periodically for discussion and activities at the points outlined in each lesson chapter.
- The activities are completed as a class.

Session 1:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 minutes</td>
<td>Welcome, Introductions, Icebreaker Activity</td>
</tr>
<tr>
<td>1 hour, 15 minutes</td>
<td>Lesson 1: Identifying Child Nutrition Food Safety Issues (Video: 28 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Labeling Activity; Foodborne Illness in the News</td>
</tr>
<tr>
<td>1 hour</td>
<td>Lunch</td>
</tr>
<tr>
<td>1 hour, 15 minutes</td>
<td>Lesson 2: Preventing Food Contamination (Video: 43 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activity: Cross-Contamination</td>
</tr>
<tr>
<td>15 minutes</td>
<td>Break</td>
</tr>
<tr>
<td>1 hour, 30 minutes</td>
<td>Lesson 3: Stopping Foodborne Illness Before It Starts (Video: 44 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Clean Your Hands; Sanitizer</td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>30 mins</td>
<td>Welcome, Times, Terms, Temperatures</td>
</tr>
<tr>
<td>1 hour</td>
<td>Lesson 4: Creating a Safe and Sanitary Workplace (Video: 47 minutes)</td>
</tr>
<tr>
<td>1 hour</td>
<td>Lunch</td>
</tr>
<tr>
<td>2 hours</td>
<td>Lesson 5: HACCP – Ensuring Food Safety at Every Step (Video: 77 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Thermometer Calibration, Food Storage Safety</td>
</tr>
<tr>
<td>15 mins</td>
<td>Break</td>
</tr>
<tr>
<td>1 hour</td>
<td>Review, Food Safety Jeopardy</td>
</tr>
</tbody>
</table>
Option 2:
- This option consists of five, two-hour sessions split over two days.
- Participants will watch the online course lessons as a class.
- The online lessons are paused periodically for discussion and activities at the points outlined in each lesson chapter.
- The activities are completed as a class.

Session 1:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 mins</td>
<td>Welcome, Introductions, Icebreaker Activity</td>
</tr>
<tr>
<td>1 hr 30 mins</td>
<td>Lesson 1: Identifying Child Nutrition Food Safety Issues (Video: 28 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Labeling Activity; Foodborne Illness in the News</td>
</tr>
</tbody>
</table>

Session 2:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hrs</td>
<td>Lesson 2: Preventing Food Contamination (Video: 43 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activity: Cross-Contamination</td>
</tr>
</tbody>
</table>

Session 3:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hrs</td>
<td>Lesson 3: Stopping Foodborne Illness Before It Starts (Video: 44 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Clean your Hands</td>
</tr>
</tbody>
</table>

Session 4:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hrs</td>
<td>Lesson 4: Creating a Safe and Sanitary Workplace (Video: 47 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Times, Terms, and Temperatures</td>
</tr>
</tbody>
</table>

Session 5:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hrs</td>
<td>Lesson 5: HACCP – Ensuring Food Safety at Every Step (Video: 77 minutes)</td>
</tr>
<tr>
<td></td>
<td>Activities: Check the Temp; Food Safety Storage</td>
</tr>
</tbody>
</table>
Option 3:
- This option assumes the online course lessons are watched individually (4 hours). You will likely need a plan for how participants will be held accountable for watching the lessons if they watch them outside of the work place.
- The class meets in three, two-hour sessions. These can either be after participants have watched all the online lessons, or one session after they have watch Lessons 1 and 2, one session after Lessons 3 and 4, and one session after Lesson 5.
- Participants will be broken up into groups. Each group will use what they learned in the lessons to create five-to-ten minute presentations to review each lesson and reinforce important information, and then present to the class.
- The activities are completed as a class.

### Session 1:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 minutes</td>
<td>Welcome, Introductions, Icebreaker Activity</td>
</tr>
<tr>
<td>30 minutes</td>
<td>Time for groups to prepare presentations</td>
</tr>
<tr>
<td>30 minutes</td>
<td>Lesson 1 and 2 group presentations, discussion following each</td>
</tr>
<tr>
<td>15 minutes</td>
<td>Activity: Cross-Contamination</td>
</tr>
</tbody>
</table>

### Session 2:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 minutes</td>
<td>Lesson 3 group presentations, discussion following each</td>
</tr>
<tr>
<td>30 minutes</td>
<td>Activity: Clean Your Hands</td>
</tr>
<tr>
<td>20 minutes</td>
<td>Lesson 4 group presentations, discussion following each</td>
</tr>
<tr>
<td>25 minutes</td>
<td>Activity: Times, Terms, and Temperatures</td>
</tr>
</tbody>
</table>

### Session 3:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 minutes</td>
<td>Lesson 5 group presentations, discussion following each</td>
</tr>
<tr>
<td>30 minutes</td>
<td>Activity: Check the Temp</td>
</tr>
<tr>
<td>20 minutes</td>
<td>Lesson 5 group presentations, discussion following each</td>
</tr>
<tr>
<td>50 minutes</td>
<td>Review, Food Safety Jeopardy</td>
</tr>
</tbody>
</table>
Preparing to Present the Training*

1. Read through the Instructor Manual to decide how you will present the sessions. The sessions should be taught in sequence.
   - Use the provided Course Planning Template on page 24 of the Instructor Manual to help with organization.

2. Decide how you will apply the online course lessons. Will you view the lessons as a class, or will participants view the lessons on their own?

3. Decide if and how you will use the group presentation topics.

4. Decide when the sessions will be presented and provide ample notice to persons who will be expected to participate in the training.
   - If the course is being offered over multiple sessions, have a plan for participants who miss a session. This could mean holding make-up lessons, or instructing participants to watch the lesson(s) at another time.

5. Prepare for presenting the lessons.
   - Before the session, select activities that fit your time constraints. Using a variety of activities in a session provides a change of pace that energizes participants.
   - Practice explaining the directions for the activities, which are described before each activity handout.
   - Using the Instructor Manual, review the pages of the Participant Manual. Review the online course lessons and transcripts.
   - Make notes in the Instructor Manual to use when presenting the sessions.
   - Be ready to share information about state and local public health department regulations and local food safety policies and procedures.
   - Research food safety manager exams available in the area. Appendix A has information on how to find local exams.

6. Make a copy of each activity handout for every participant. Blank copies of each activity can be found in Appendix R.

7. Prepare an ice breaker activity for participants. Examples of ice breakers can be found at:
• Northern Illinois University
  (http://www.cedu.niu.edu/~shumow/itt/Icebreakers.pdf)

• National Food Service Management Institute (NFSMI)
  (http://www.nfsmi.org/documentlibraryfiles/PDF/20110314102309.pdf)

• Or you can use the one below:
  Ask participants to introduce themselves to the group by sharing the following information:
  
  Name and job title
  School and school district
  Finish this sentence: I would like to know more about ____________.
  (The sentence should describe some topic or area related to food safety.)

8. Set up the training room to promote adult learning.

• Arrange seating for four or five people at each table. These small groups will have discussions and complete activities as described in the Instructor Manual.

• NFSMI has a fact sheet on how to set up the classroom for adult learning:
  (http://www.nfsmi.org/documentlibraryfiles/PDF/20100929032306.pdf)

9. Use best practices to facilitate adult learning.

• For a review of adult learning, see

• Be aware of what the participants already know about food safety. Find out their specific needs through discussions.

• Make sure the participants know why food safety is important and necessary to their success.

• Follow the Instructor Manual to involve the participants. In addition to the activities that are planned, involve participants by asking questions and leading discussions.

• Use coaching during activities as a way to provide individual attention and encouragement. For more information on coaching, see
  http://www.nfsmi.org/documentlibraryfiles/PDF/20140326014936.pdf

• Give feedback to the group and to individuals.
• After explaining directions for an activity, use a communication check to be sure participants understand what is to be done. Call on participants by name to tell the class what is to be done. If a participant does not recall the correct directions, explain the directions again.

10. Plan for comfort breaks as part of the session schedule. A three-hour session should include at least one 15-minute break. The time schedule for each session includes a suggested place in the content where a comfort break can be schedule.

11. Begin and end each session on time.

Course Planning Template

Number of sessions:_____________  Lessons in each session:_____________

**Session ___**

<table>
<thead>
<tr>
<th>Time Given</th>
<th>Lessons Taught</th>
<th>Activities Conducted</th>
<th>Supplies Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

**Session ____**

<table>
<thead>
<tr>
<th>Time Given</th>
<th>Lessons Taught</th>
<th>Activities Conducted</th>
<th>Supplies Needed</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
## Preparation Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Person Responsible</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather supplies as needed for use on the day of class (6 weeks prior).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor’s Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roster of participants attending for instructor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants’ sign-in sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of equipment and supplies needed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant manuals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash drive with presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microphone (preferably wireless)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer to present slides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PowerPoint Projector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PowerPoint slide advancer and laser pointer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flip chart paper (self-adhesive strip sheets)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Markers for flip chart and group work (should be washable; not permanent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baskets with pens, pencils, note paper, highlighters, self-adhesive notes, page markers, index cards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name tags and table tents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handouts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies for activities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When Beginning the First Class Session*

1. Introduce yourself and offer welcoming remarks. Complete any administrative requirements, such as roll call.
2. Point out the table of contents in the Participant Manual and explain how to use it to find answers to questions about food safety.
3. Using the table of contents, describe how the lessons will be used in the training sessions.
4. Explain that the exams are general and cover items that may not be pertinent to their position or kitchen, but that they are good for general knowledge and a better understanding of the topics that are more specific to child nutrition programs.
5. Explain any logistical information needed by the participants.

Food Handler Certificate

California law requires everyone that handles food in a retail establishment to have a food handler certificate. However, school nutrition personnel working in public or private school cafeterias are exempt from this requirement, with the exception of Riverside, San Bernardino, and San Diego counties. These counties have their own, county-specific laws for food handlers (see below).

The food handler certificate is not equivalent to a manager certification and does not meet the requirement for a certified food safety manager at every facility and school site.

If you do choose to have your employees earn a food handler certificate (often called a food handler's card), the training must be from an American National Standards Institute (ANSI) accredited training provider. (This curriculum does not meet this food handler certificate requirement.) A food handler card is issued after successful completion of an ANSI accredited training program and examination; together they are designed to be completed in about two and a half hours. The exam consists of approximately 40 questions, and requires at least 70% correct to pass. The certificate expires after three years, and needs to be renewed by taking an ANSI accredited course and exam.

County-Specific Food Handler Card Requirements

Three counties in California have their own food handler requirements that do not exempt schools: Riverside, San Bernardino, and San Diego. Each county has county-specific courses and exams. These cannot be used to fulfill the state requirements for a food handler certificate, or to fulfill the requirements in a different county. Only the courses and tests approved by each county meet the requirements in that particular county.

- If an individual is a certified food safety manager, he or she does not need to obtain a food handler certificate.
- If an individual has a food handler certificate from a state-approved course and test, that person would still need to obtain the county-specific certification from a course and exam approved by that county.

Riverside County

There are three options for obtaining a Riverside county-specific food handler card:

1. Purchase and complete the online course and test, available at: [http://riverside.statefoodsafety.com](http://riverside.statefoodsafety.com)
2. Visit one of the Environmental Health Department area offices to read the study manual and complete the exam.
3. Download the manual from the website to study independently. Once the manual is read, visit one of the Environmental Health Department area offices to take the exam.

For more information, visit: [http://www.rivcoeh.org/Programs/handler_card](http://www.rivcoeh.org/Programs/handler_card)
San Bernardino County

Only the online course available at the link below is valid for obtaining a San Bernardino county-specific food handler card:


Local Environmental Health Department area offices have a limited number of computers that can be used to complete the online course and test.

For more information, visit: http://www.sbcounty.gov/dph/dehs/Depts/EnvironmentalHealth/FIRST/food_worker_training.aspx

San Diego County

There are two options for obtaining a San Diego county-specific food handler card:

1. Take one of the approved courses and pass the approved exam. San Diego County lists several approved courses on their website at http://www.sandiegocounty.gov/content/sdc/deh/fhd/food/foodhandler.html.
2. Pass the San Diego County food handler test administered by a current food safety manager who has passed a state-approved food safety manager certification exam.

For more information, visit: http://www.sandiegocounty.gov/content/sdc/deh/fhd/food/foodhandler.html
Lesson Overview

Lesson Competency

On completion of this lesson, the participant will develop an understanding of common food safety issues in the child nutrition program environment and some basic ways to promote food safety and sanitation.

Performance Standards

- Explain the five main food safety issues facing child nutrition programs
- Recognize the three basic food safety hazards
- Name the three most common factors responsible for causing foodborne illness
- Describe the four essential rules of food safety
- Explain the requirements for food safety certification in California

Lesson Content

Food Safety Issues
- There are several issues that make high food safety standards necessary.

Food Safety Concepts
- Why study safety and sanitation?
- Foodborne illness
- How food becomes unsafe
- Basics of food safety
- Food safety hazards
- Other issues

Exam Content Areas
- Overview of topics covered on food safety manager certification exams

For more information about food safety manager exam options, see Appendix A.
Vocabulary

Food safety—The safeguarding of food from anything that could harm the health of consumers

Foodborne illness—A sickness that is caused by eating a contaminated food or drinking a contaminated drink

Foodborne outbreak—An incidence in which two or more people become sick and have the same symptoms after eating a common food: this is confirmed when a laboratory analysis shows the source of sickness to be a specific food

Pathogen—A disease-producing microorganism

Physical contaminant—An undesirable, non-food item present in food or water; examples include dirt, hair, broken glass, metal fragments, and bits of packaging materials

Potentially hazardous foods (PHF)—Foods that support the growth of microorganisms

Sanitary—Free of harmful levels of pathogens

Temperature abuse—Holding foods in the temperature danger zone (at unsafe temperatures), which allows bacterial growth, or not cooking or reheating foods properly to destroy harmful microorganisms

Did you know?

PHFs are also called Time-Temperature Control for Safety (TCS) Foods.
Activities

Labeling Activity

Description of Activity:

The goal of the labeling activity is to demonstrate how easy it is to mistake similar-looking substances for each other when they are not labeled.

Choose five to ten different common household powders. Put a small amount of each powder into a different baggie, labeled with a different number. Be sure to create a key to identify which powder is in which baggie.

Divide participants into groups. Give each group five to ten baggies of different white powders. Instruct participants not to taste or inhale any of the powders. Have participants try to figure out which white powders are which.

Following the activity, discuss with the class the importance of labeling everything in the kitchen. Ask participants to share if they have a system in their kitchen to make sure everything is labeled properly.

When to pause the lesson: After slide 35. Alternatively, this activity also fits well in Lesson 2, after slide 116, or Lesson 4, after slide 95.

Your Pause Point(s): ________________________________________________________

Supplies Needed:

- Five to ten different common white powders (see suggestions below)
- Plastic baggies
- Labels
- Copies of activity handout
- Answer key

Suggestions for powders to include (choose 5-10 to include in this activity):

1. Abrasive sink cleaner
2. All-purpose flour
3. Baking soda
4. Baking powder
5. Coffee creamer
6. Corn starch
7. Dry-carpet cleaner
8. Granulated sugar
9. Laundry detergent
10. Pancake mix
11. Powdered lemonade mix
12. Powdered sugar
13. Salt
14. Sanitizer
15. Vanilla pudding mix
Labeling Activity

Identify the unlabeled white powders in the numbered bags based on the list provided below:

White Powder Choices:

<table>
<thead>
<tr>
<th>Abrasive sink cleaner</th>
<th>Corn starch</th>
<th>Powdered lemonade mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-purpose flour</td>
<td>Dry-carpet cleaner</td>
<td>Powdered sugar</td>
</tr>
<tr>
<td>Baking soda</td>
<td>Granulated sugar</td>
<td>Salt</td>
</tr>
<tr>
<td>Baking powder</td>
<td>Laundry detergent</td>
<td>Sanitizer</td>
</tr>
<tr>
<td>Coffee creamer</td>
<td>Pancake mix</td>
<td>Vanilla pudding mix</td>
</tr>
</tbody>
</table>

1. ____________________   6.   _______________________
2. ____________________   7.   _______________________
3. ____________________   8.   _______________________
4. ____________________   9.   _______________________
5. ____________________   10.  ______________________

Why is it important to label everything in the kitchen?

________________________________________________________________________
________________________________________________________________________

What labeling system is in place in your facility's kitchen?

________________________________________________________________________
________________________________________________________________________
Foodborne Illness in the News: Could it Happen Here?

Description of Activity:

The goal of this activity is to discuss whether a foodborne illness outbreak could happen at your site or district, and how it could be prevented.

Distribute copies of a news story about a foodborne illness outbreak. Divide participants into groups. Have the groups read the news story and discuss the following questions:

1. What caused the outbreak?
2. Could it have been prevented?
3. Could it happen at our site or district? Why or why not?
4. How do we prevent things like this from happening?

When to pause the lesson: This activity can be done prior to the start of the lesson, or after slide 8. Alternatively, this activity can be done prior to the supplemental lesson.

Your Pause Point(s): ______________________________________________________

Supplies needed:

- Copies of a foodborne illness outbreak news story or stories

Examples of news stories:

- http://www.foodsafetynews.com/sections/foodborne-illness-outbreaks/
## Discussion Topics and Other Pause Points

<table>
<thead>
<tr>
<th>Discussion Questions</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why is food safety important?</td>
<td>6</td>
</tr>
<tr>
<td>Why is foodborne illness a serious issue? Why is foodborne illness more serious than it was in the past?</td>
<td>9</td>
</tr>
<tr>
<td>What are some everyday dos and don’ts for the kitchen?</td>
<td>28</td>
</tr>
<tr>
<td>What are some of the examples of biological, chemical, and physical contaminants we might encounter?</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pause Points</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inform participants that the Customized Child Nutrition Exam is no longer offered, but there are other exams available. See Appendix A for more information on exam options. You may also want to remind them that the exam covers areas that might not be directly relevant to their position, but is still good information to know.</td>
<td>45</td>
</tr>
</tbody>
</table>
Presentation Topics

The presentation topics (see box below) are to allow participants to share what they know with the class. They can use the Participant Manual, other food safety resources, and their own experience to talk about their topics. Either assign one group the entire topic, and have them answer the questions below, or assign questions to different groups.

Some suggested instructions to provide groups who will be presenting:

1. Choose the most important things about your topic that you think everyone should know. If you want, you can also share a story or experience you have had related to this topic.
2. Use flip chart paper, a chalkboard, or whiteboard to write down three to five key points. You can write short sentences, or just key words. These will help the class follow along with what you are talking about.
3. At the start of your presentation, introduce your question or presentation topic to the group by stating the question or topic you will be talking about. After you’ve stated your question or topic, proceed with your presentation.

Importance of Food Safety:

- Who is more susceptible to foodborne illness, and why?
- What is the temperature danger zone? Why is it dangerous?
- What are the essential rules of food safety?
## Lesson 1 Worksheet

Matching: *Draw a line from the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The safeguarding of food from anything that could harm the health of consumers</td>
<td>A. Potentially hazardous foods (PHF)</td>
</tr>
<tr>
<td>2. A sickness that is caused by eating a contaminated food or drinking a contaminated beverage</td>
<td>B. Temperature abuse</td>
</tr>
<tr>
<td>3. An incidence in which two or more people become sick and have the same symptoms after eating a common food; this is confirmed when a laboratory analysis shows the source of a sickness to be a specific food</td>
<td>C. Food safety</td>
</tr>
<tr>
<td>4. A disease-producing microorganism</td>
<td>D. Sanitary</td>
</tr>
<tr>
<td>5. An undesirable, non-food item present in food or water; examples include dirt, hair, broken glass, metal fragments, and bits of packaging materials</td>
<td>E. Foodborne outbreak</td>
</tr>
<tr>
<td>6. Foods that support the growth of microorganisms</td>
<td>F. Physical contaminant</td>
</tr>
<tr>
<td>7. Free of harmful levels of pathogens</td>
<td>G. Foodborne illness</td>
</tr>
<tr>
<td>8. Holding foods in the temperature danger zone (at unsafe temperatures), which allows bacterial growth, or not cooking or reheating foods properly to destroy harmful microorganisms</td>
<td>H. Pathogen</td>
</tr>
</tbody>
</table>
9. Why is foodborne illness a serious issue?

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

10. Why is foodborne illness more serious than it was in the past?

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

11. Why is there a need to study sanitation and safety?

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

12. The temperature danger zone is between _____ °F and _____ °F. Food becomes unsafe after _____ hours in the temperature danger zone.

13. Name the three basics food safety hazards:

1) ____________________________________________________

2) ____________________________________________________

3) ____________________________________________________
14. The essential rules of food safety are:

1) ________________________
2) ________________________
3) ________________________
4) ________________________

15. What is the number one thing a child nutrition employee can do to curb the spread of foodborne illness?

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

16. Name the three most common factors responsible for causing foodborne illness:

1) ____________________________________________________
2) ____________________________________________________
3) ____________________________________________________
Lesson 2: Preventing Food Contamination
Lesson Overview

Lesson Competency

Develop an understanding of harmful microorganisms that are responsible for most foodborne illness and how these microorganisms grow and spread

Performance Standards

- Contrast the terms food contamination and food spoilage
- Recognize common harmful microorganisms found in the food service environment that may cause foodborne illness
- Identify factors that affect bacterial growth
- Define the temperature danger zone and the length of time a food can be safely held at these temperatures
- Describe the effect of acidity or alkalinity on bacterial growth and how this affects food handling and storage
- Explain three ways cross-contamination may occur
- Describe ways to prevent food contamination

Lesson Content

Food Contamination

- Exposure of a food to a pathogen, or chemical or physical hazard

Types of Contaminants

- Biological
- Chemical
- Physical

Foodborne Infection, Intoxication, and Toxin-Mediated Infection

- Infection: Illness caused by eating a food containing a living, disease-causing microorganism
- Intoxication: Illness caused by eating a food that contains a harmful chemical or toxin produced by a bacteria or other source
• Toxin-mediated infection: Illness caused by eating a food that contains harmful microorganisms that will produce toxins once inside the human body

Biological contaminants
• Bacteria
• Viruses
• Parasites
• Fungi

Causes of Foodborne Illness
• Trichinella spiralis
• Clostridium botulinum
• Clostridium perfringens
• Escherichia coli
• Salmonella
• Staphylococcus aureus

Factors Affecting the Growth of Microorganisms: FATTOM
• Food
• Acidity
• Temperature
• Time
• Oxygen
• Moisture

Cross-Contamination
• Transfer of harmful microorganisms from one item to another

Preventing Biological Contamination
• Practicing good personal hygiene
• Controlling time and temperature
• Preventing cross-contamination

Preventing Chemical Contamination
• Proper storage and labeling
• Proper usage

Food Allergens
• Classified as a chemical contaminant

Preventing Physical Contamination
• Proper cleaning and storage
• Do not wear false fingernails, jewelry, etc.
• Use a hair restraint

Learn more about these pathogens in Appendix B!

Did you know?

Some strains of pathogenic bacteria can survive below pH 4.6, such as E. coli O157:H7

Did you know?
The eight most common food allergies are:
1. Peanuts
2. Tree nuts
3. Milk
4. Egg
5. Wheat
6. Soy
7. Fish
8. Shellfish
Vocabulary

**Acidity**—A measurement on a pH scale ranging from 0 (very acid) to 14.0 (very alkaline or basic), with 7.0 being neutral; a pH level between 4.6 and 7.0 will support bacterial growth

**Aerobic microorganisms**—Microorganisms that must have oxygen in order to grow

**Anaerobic microorganisms**—Microorganisms that cannot survive when oxygen is present, but will grow in oxygen-free environments, such as in vacuum-packaged foods

**Bacteria**—Living, microscopic, single-celled organisms that are involved in fermenting and spoiling foods which often cause disease

**Cross-contamination**—The transfer of harmful microorganisms (pathogens) or other harmful substances from one food, water, or non-food item to another; commonly happens when pathogens from raw food are transferred to a cooked or ready-to-eat food by contaminated hands, equipment, or utensils

**Facultative anaerobic microorganisms**—Microorganisms that can grow with or without oxygen, but have a preference for without; most pathogens are facultative anaerobic microorganisms

**Food contamination**—Exposure of a food to a pathogen, or chemical or physical hazard; not usually detectable by sight, smell, or taste

**Food infection**—Illness caused by eating a food containing a living, disease-causing microorganism

**Food intoxication**—Illness caused by eating a food that contains a harmful chemical or toxin produced by a bacteria or other source

**Food spoilage**—Damage to the edible quality of food, which may or may not lead to foodborne illness; often easily detectable by sight, smell, or taste

**Fungi**—Organisms that range from single-celled, microscopic organisms, such as yeasts and molds to multicellular organisms, such as mushrooms; fungi are not plants, animals, or bacteria.

**MAP**—MAP stands for Modified Atmosphere Packaging, a sealed package in which the oxygen has been reduced or replaced with other gases, such as nitrogen and carbon dioxide extending the shelf life of a food

**Microorganisms**—Microscopic organisms

---

**Did you know?**

Bacteria are not plants or animals. Fungi are not plants, animals, or bacteria.
Mold—A fungus that produces a furry growth on vegetable or animal matter exposed to damp conditions

Parasite—An organism that lives on or in, and feeds off of, another living thing

pH—A symbol used to designate the acidity or alkalinity of a food

Potentially hazardous goods (PHF)—Foods that support the growth of microorganisms

Sous-vide—Meaning “without air” in French, a process by which raw ingredients, often entire recipes, are sealed in plastic pouches and then the air is vacuumed out and sometimes replaced with nitrogen or carbon dioxide; the pouch is minimally cooked under precise conditions and immediately refrigerated

Toxin-medicated infection—Illness caused by eating a food that contains harmful microorganisms that will produce toxins once inside the human body
Activity

Cross-Contamination Activity

Description of Activity:

The goal of this activity is to demonstrate how cross-contamination can spread pathogens.

Divide participants into groups. Distribute large pieces of paper and small sponges to each person. At each table, provide a small container of red paint. Instruct participants to dip their sponge in the paint only once, and dot paint on the paper until no more paint marks appear. They should then count how many paint dots they were able to create with just one dip of paint.

Have participants discuss what would happen if their hands or a knife touched raw chicken and then proceeded to touch other foods or items in the kitchen. How far could they spread pathogens without realizing it?

When to pause the lesson: After slide 104

Your Pause Point(s): ____________________________________________________________

Supplies Needed:

- Sponges
- Large sheets of paper
- Red paint
- Small cups or other container
- Paper towels (for clean-up)
- Copies of activity handout
Cross-Contamination Activity

Dip a piece of your sponge once into the chicken blood (paint). Dot the sponge on the paper until you can no longer see any marks.

How many dots did you get? _________________

Explain what this demonstrates to you.
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

List five places in your kitchen where cross-contamination can occur:
1. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________

What are some strategies that can be used in your kitchen to prevent cross-contamination?
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
## Discussion Topics and Other Pause Points

<table>
<thead>
<tr>
<th>Discussion Questions</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever had a foodborne illness?</td>
<td>16</td>
</tr>
<tr>
<td>How could <em>Clostridium perfringens</em> become a problem in your kitchen or serving line?</td>
<td>45</td>
</tr>
<tr>
<td>Why is it important to keep the temperature at the steam table set to an appropriate level?</td>
<td></td>
</tr>
<tr>
<td>When there is a Staph outbreak, what is generally the culprit? What are some good practices for personal hygiene that could help prevent the spread of Staph?</td>
<td>57</td>
</tr>
<tr>
<td>Two of the ways we control bacteria growth are time and temperature. When do we use time to control bacterial growth? When do we use temperature? How do we use both every day to keep food safe?</td>
<td>83</td>
</tr>
<tr>
<td>What are some of the ways we handle allergies in our program?</td>
<td>121</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pause Points</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Let participants know that these are also sometimes called Time-Temperature Control for Safety (TCS) Foods.</td>
<td>14</td>
</tr>
<tr>
<td>Give a quick example of each type of contaminant for clarification.</td>
<td>19</td>
</tr>
<tr>
<td>As a group, review the information in Appendix B.</td>
<td>39 or 66</td>
</tr>
<tr>
<td>Point out that while bacteria generally can't grow in very acidic environments, some strains can survive a pH below 4.6.</td>
<td>76</td>
</tr>
<tr>
<td>Review the eight most common allergies with participants.</td>
<td>121</td>
</tr>
</tbody>
</table>
Presentation Topics

The presentation topics (see boxes below) are to allow participants to share what they know with the class. They can use the Participant Manual, other food safety resources, and their own experience to talk about their topics. Either assign one group the entire topic, and have them answer the questions below, or assign questions to different groups.

Some suggested instructions to provide groups who will be presenting:

1. Choose the most important things about your topic that you think everyone should know. If you want, you can also share a story or experience you have had related to this topic.
2. Use flip chart paper, a chalkboard, or whiteboard to write down three to five key points. You can write short sentences, or just key words. These will help the class follow along with what you are talking about.
3. At the start of your presentation, introduce your question or presentation topic to the group by stating the question or topic you will be talking about. After you’ve stated your question or topic, proceed with your presentation.

Foodborne Illness:
- How do you recognize a foodborne illness?
- What are the differences between an intoxication and an infection?
- What is a foodborne outbreak?

Preventing Contamination:
- What are the different types of contaminants?
- How are biological pathogens spread?
- How can you prevent chemical contamination?
- How can you prevent physical contamination?
Lesson 2 Worksheet

*Match the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A measurement on a pH scale ranging from 0 (very acid) to 14.0 (very alkaline or basic), with 7.0 being neutral</td>
<td>A. Cross-contamination</td>
</tr>
<tr>
<td>2. Microorganisms that must have oxygen in order to grow</td>
<td>B. Bacteria</td>
</tr>
<tr>
<td>3. Microorganisms that cannot survive when oxygen is present</td>
<td>C. Food contamination</td>
</tr>
<tr>
<td>4. Living, microscopic, single-celled organisms that are involved in fermenting and spoiling foods which often cause disease</td>
<td>D. Aerobic microorganisms</td>
</tr>
<tr>
<td>5. The transfer of harmful microorganisms (pathogens) or other harmful substances from one food, water, or non-food item to another</td>
<td>E. Fungi</td>
</tr>
<tr>
<td>6. Microorganisms that can grow with or without oxygen, but have a preference for without; most pathogens are these</td>
<td>F. Food spoilage</td>
</tr>
<tr>
<td>7. Exposure of a food to a pathogen, or chemical or physical hazard; not usually detectable by sight, smell, or taste</td>
<td>G. Acidity</td>
</tr>
<tr>
<td>8. Damage to the edible quality of food, which may or may not lead to foodborne illness; often easily detectable by sight, smell, or taste</td>
<td>H. Facultative anaerobic microorganisms</td>
</tr>
<tr>
<td>9. Organisms that range from single-celled, microscopic organisms, such as yeasts and molds to multicellular organisms, such as mushrooms</td>
<td>I. Anaerobic microorganisms</td>
</tr>
</tbody>
</table>
Match the definition to the correct word.

10. A sealed package in which the oxygen has been reduced or replaced with other gases, such as nitrogen and carbon dioxide
   ______ J. Parasite

11. Microscopic organisms
   ______ K. Microorganisms

12. A fungus that produces a furry growth on vegetable or animal matter exposed to damp conditions
   ______ L. pH

13. An organism that lives on or in, and feeds off of, another living thing
   ______ M. Sous-vide

14. A symbol used to designate the acidity or alkalinity of a food
   ______ N. Modified Atmosphere Packaging (MAP)

15. A process by which raw ingredients, often entire recipes, are sealed in plastic pouches and then the air is vacuumed out
   ______ O. Mold

16. A. _______________________ is exposure of a food to a pathogen, or chemical or physical hazard and is not usually detected by sight, smell, or taste.

   B. _______________________ is damage to the edible quality of food, which may or may not lead to foodborne illness and is often detected by sight, smell, or taste.

   C. Foodborne _______________________ is caused by eating food that contains a living, disease-causing microorganism (ex: *Listeria monocytogenes*, *Hepatitis A*, *Toxoplasma gondii*).

   D. Foodborne _______________________ is caused by eating food that contains a harmful chemical or toxin produced by bacteria or other source (ex: *Staphylococcus aureus*, *Clostridium botulinum*).

   E. _______________________ -mediated infection is caused by eating food that contains harmful microorganisms that will produce a toxin once inside the human body (ex: *E. coli* 0157:H7, *Clostridium botulinum*).
17. Factors Affecting the Growth of Microorganisms:

1) _______________________
2) _______________________
3) _______________________
4) _______________________
5) _______________________
6) _______________________

18. __________ - ________________________ is when harmful microorganisms can be transferred from one item to another. Typically, microbes from a raw food are transferred to a cooked or ready-to-eat food by contaminated hands, equipment, or utensils.

• Explain the three ways cross-contamination may occur:
  1) ________________________: Thawing beef is stored above an uncovered salad and drips into it
  2) ________________________: Food handler scratches body and then handles food with bare hands
  3) ________________________: Meat slicer is used to slice raw meat and then to slice bologna for cold sandwiches without being washed

• The California Retail Food Code requires that employees wear ___________ when contacting food or food-contact surfaces if they have cuts, sores, artificial nails, etc.

19. Which of the following does NOT explain why bacteria are the most common cause of foodborne disease in a food establishment?

   a) Under ideal conditions, bacteria can grow very rapidly.
   b) Bacteria are found naturally in many foods.
   c) Bacteria can be easily transferred from one food source to another.
   d) Bacteria need a host to survive.
20. Most bacteria that cause foodborne illness grow:

   a) With or without oxygen between 41°F and 135°F.
   b) Without oxygen between 41°F and 165°F.
   c) With oxygen between 41°F and 135°F.
   d) With or without oxygen between 41°F and 165°F.

21. Which of the following organisms is most likely to cause foodborne illness in a food establishment?
   a) *Salmonella*
   b) *Cryptosporidium parvum*
   c) *Anasakis*
   d) *Trichanella spiralis*

22. Bacteria grow best within a narrow temperature range called the temperature danger zone. The temperature danger zone is between:

   a) 0 °F and 220 °F
   b) 32 °F and 135 °F
   c) 41 °F and 135 °F
   d) 41 °F and 165 °F

23. Bacteria that cause foodborne illness will only grow on foods that have a pH range of ___ to ___.

   a) 3.2 to 9.0
   b) 4.6 to 7.0
   c) 5.0 to 7.0
   d) 7.0 to 9.0

24. Bacteria that cause foodborne illness will only grow on foods that have a water activity (Aw) above ___.

   a) 0.85
   b) 0.70
   c) 0.46
   d) 0.10
25. Why do some bacteria form spores?

   a) To reproduce
   b) To move more easily from one location to another
   c) To survive adverse environmental conditions
   d) To survive without oxygen

26. Which of the following is NOT considered a potentially hazardous food?

   a) Red meat
   b) Fish and shellfish
   c) Poultry and eggs
   d) Dried rice

27. The most effective way to control the growth of bacteria in a food establishment is to control:

   a) Time and temperature
   b) Oxygen and pH conditions
   c) Temperature and water activity
   d) Water activity and food availability
Lesson 3: Stopping Foodborne Illness Before It Starts
Lesson Overview

Lesson Competency

Develop an understanding of techniques for preventing the spread of dangerous microorganisms, including safe and sanitary personal practices, and proper sanitizing of dishes, utensils, and equipment

Performance Standards

- Recognize the difference between “clean” and “sanitary”
- Demonstrate two methods of sanitizing equipment
- Demonstrate the steps involved in properly sanitizing both portable and in-place equipment
- Apply sanitary personal practices for safe food service in the workplace
- Recognize what to do in case of a foodborne outbreak

Lesson Content

Cleaning Versus Sanitizing

- Cleaning: Physical removal of dirt, food residues, and other visible soil
- Sanitizing: Treatment of a surface that has been cleaned to reduce the number of disease-causing microorganisms to safe levels

Methods of Sanitation

- Heat
- Chemical

Types of Chemical Sanitizers

- Chlorine
- Iodine
- Quaternary ammonium
Things to Keep in Mind
- Sanitizing wiping cloths
- Dishwashing machines

Proper Storage
- Chemicals
- Glasses and flatware

Sanitizing Equipment
- Portable
- In-place

Cleaning Frequency
- Equipment and utensils
- Food contact surfaces

Personal Hygiene
- Personal best
- Proper attire
- Personal health

Effective Handwashing
- Handwashing steps
- When to wash hands

Proper Use of Disposable Gloves
- How to use gloves
- When to change gloves

Outbreak! What to Do…
- Steps to take when an outbreak occurs
Vocabulary

**Clean**—Free of dirt, food particles, or other visible soil

**Potable water**—Water that is safe to drink

**Sanitary**—Free of harmful levels of pathogens

**Sanitize**—To treat a surface that has been cleaned to reduce the number of disease-causing microorganisms to safe levels
Activities

Clean Your Hands Activity

Description of Activity:

The purpose of this activity is to demonstrate the importance of proper handwashing, and to highlight easy-to-miss areas when handwashing.

Depending on the number of participants, you may want one representative from each group to complete the activity, or every person in the class.

Off to the side of the room, set up a Glo Germ station. On this station, include bottles of Glo Germ lotion and black lights. Participants will need to rub a small amount of Glo Germ all over their hands and wrists. They should then wash their hands in a sink as they normally would. The black light will cause any remaining Glo Germ to glow.

Optional: Have one participant (or yourself) use hand sanitizer in place of handwashing for comparison.

When to Pause the Lesson: After slide 67

Your Pause Point(s): ____________________________

Supplies Needed:

- Glo Germ lotion (purchasing information at www.glogerm.com)
- Black lights
- Extra batteries for black lights
- Hand sanitizer (optional)
- Copies of activity handout
Activity:

1. Get a small amount of Glo Germ and rub it evenly on your hands and wrists.
2. Wash your hands like you normally would.
3. Use a black light to highlight your handwashing skills.

List 3 areas of your hands that you should pay close attention to when washing your hands.

a. __________________
   
b. __________________
   
c. __________________

Why is it important to make sure your hands are properly washed?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What are some strategies that can be used in your kitchen to ensure that everyone is practicing good handwashing?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Know Your Sanitizing Solution Activity

Description of Activity:

The goal of the “Know Your Sanitizing Solution” activity is to demonstrate how to use sanitizing solution test strips to determine the correct concentration of sanitizer.

Prior to the beginning of the activity, make up three different concentrations of sanitizer solution. You should use the sanitizing solution that is commonly used at your site or district. One solution should be too concentrated, one should be not concentrated enough, and one should be the correct concentration. Label these solutions, A, B, and C. Make a note of which solution is which.

Divide participants into groups. Provide the groups with test strips and tape. Have a representative of each group test each of the three solutions. The group should then determine the concentrations and which one is correct.

When to Pause the Lesson: After slide 34

Your Pause Point(s): ______________________________________________________________

Supplies Needed:

- Sanitizer solution
- Water
- Sanitizer test strips
- Containers for solution
- Tape
- Copies of activity handout
- Sanitizer test strip concentration key
- Solution concentration key
Know Your Sanitizing Solution

Activity:

Each of the three containers has different amounts of sanitizing solution in them. One has the correct amount.

1. Using a different piece of test strip for each container, dip a test strip into each container (A, B, C).

2. Tape the three strips in the boxes below. List the PPM for each test strip and circle the one that has the correct amount of solution for sanitizing dishes.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>PPM</td>
<td>PPM</td>
<td>PPM</td>
</tr>
</tbody>
</table>

Why is it important to have the correct sanitizer concentration?

_________________________________________________________________________
_________________________________________________________________________
### Discussion Topics and Other Pause Points

<table>
<thead>
<tr>
<th>Discussion Questions</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did Edna do anything wrong? What could she have done differently?</td>
<td>10</td>
</tr>
<tr>
<td>What do you think are the reasons we can’t cloth dry utensils and equipment?</td>
<td>39</td>
</tr>
<tr>
<td>What are some things we should remember about proper glove use? What are some instances when we would need to change gloves?</td>
<td>79</td>
</tr>
<tr>
<td>How do you respond to a situation like this? What are the most important things to do first?</td>
<td>83</td>
</tr>
<tr>
<td>Did Edna do anything wrong? What could she have done differently?</td>
<td>88</td>
</tr>
</tbody>
</table>

There are no recommended Pause Points in this lesson, but you can use the table below to add your own.

<table>
<thead>
<tr>
<th>Pause Points</th>
<th>Stop after slide #</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>
Presentation Topics

The presentation topics (see boxes below and on next page) are to allow participants to share what they know with the class. They can use the Participant Manual, other food safety resources, and their own experience to talk about their topics. Either assign one group the entire topic, and have them answer the questions below, or assign questions to different groups.

Some suggested instructions to provide groups who will be presenting:

1. Choose the most important things about your topic that you think everyone should know. If you want, you can also share a story or experience you have had related to this topic.
2. Use flip chart paper, a chalkboard, or whiteboard to write down three to five key points. You can write short sentences, or just key words. These will help the class follow along with what you are talking about.
3. At the start of your presentation, introduce your question or presentation topic to the group by stating the question or topic you will be talking about. After you’ve stated your question or topic, proceed with your presentation.

Preventing Contamination:
- How do you protect food packaging and food contact surfaces from contamination?
- Why is it important to verify no bare hand contact for ready-to-eat foods?
- What are some ways to ensure that food is stored properly?
- How do you monitor “foot traffic” of nonessential staff in food preparation areas?
- What are the appropriate ways to dispose of wastes?

Cleaning and Sanitizing:
- What are important steps in cleaning and sanitizing procedures?
- Where is it safe to store and maintain cleaning and sanitizing materials, tools and products?
- How do you conduct cleaning and sanitizing procedures in the establishment safely?
Personal Hygiene and Handwashing:

- **What is needed in order to execute employee health policies?**
- **What are the steps for proper handwashing?**
- **What do we need to know about employee behaviors related to smoking, eating, and drinking?**
- **What is proper glove use?**
- **Where is the proper storage place for employee personal belongings, including medication that needs to be refrigerated?**
Lesson 3 Worksheet

Matching: *Draw a line from the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Free of dirt, food particles, or other visible soil</td>
<td>A. Potable water</td>
</tr>
<tr>
<td>2. Water that is safe to drink</td>
<td>B. Sanitize</td>
</tr>
<tr>
<td>3. Free of harmful levels of pathogens</td>
<td>C. Clean</td>
</tr>
<tr>
<td>4. To treat a surface that has been cleaned to reduce the number of disease-causing microorganisms to safe levels</td>
<td>D. Sanitary</td>
</tr>
<tr>
<td>5. The physical removal of dirt, food residues, and other visible soil</td>
<td>E. Rinsing</td>
</tr>
<tr>
<td>6. The removal of cleaners</td>
<td>F. Washing</td>
</tr>
</tbody>
</table>

7. The two methods of equipment sanitation are:
   I. _________________________________________
   II. _________________________________________

8. The California Retail Food Code specifies that food contact surfaces of equipment and utensils used with potentially hazardous food be cleaned at least every ________ hours when in constant use.

9. What are the proper steps in the manual dishwashing operation after scraping and pre-rinsing?
   a) Wash, rinse, sanitize, and towel dry
   b) Rinse, wash, sanitize, and air dry
   c) Wash, rinse, sanitize, and air dry
   d) Rinse, wash, sanitize, and towel dry
10. When sanitizing with hot water in manual dishwashing, what should the temperature of the water in the final rinse be?
   a) 140°F
   b) 171°F
   c) 194°F
   d) 212°F

11. Which of the following statements is false?
   a) In manual heat sanitizing, dishes must be immersed in water at 171°F or above for at least 30 seconds.
   b) Pre-scraping helps remove food from dishes, which helps the wash water clean the dishes.
   c) Iodine is less corrosive than chlorine.
   d) Sanitizing is a process that removes soil and prevents accumulation of food residues on equipment, utensils, and surfaces.

12. The recommended water temperature range for sanitizing solutions is between ____ and ____.
   a) 55°F and 120°F
   b) 75°F and 120°F
   c) 41°F and 140°F
   d) 140°F and 171°F

13. The strength of a chemical sanitizer in manual dishwashing must be checked often because...
   a) If the chemical is too strong, it ruins dishes.
   b) The chemical strength increases over time and leaves a toxic residue on equipment.
   c) The strength of chemical sanitizers may drop off as pathogens are killed and the sanitizer is diluted with rinse water.
   d) The chemical strength increases with time and could corrode the metal on equipment.

14. Which is not a recommended sanitizer for a food establishment?
   a) Chlorine
   b) Iodine
   c) Quaternary Ammonia Compounds
   d) Ammonia
15. Which of the following statements is false?

a) Keeping things clean is the responsibility of every person working in the food industry.

b) To be sanitary, a piece of equipment must be free of all pathogens.

c) Food service workers should not wear medical information jewelry while working with food.

d) Food service workers should report any suspected foodborne illness to supervisors.
Lesson Overview

Lesson Competency

Develop an understanding of the design and maintenance of a safe and sanitary food service facility, including preventing contamination by common pests and taking precautions to prevent accidents and injuries.

Performance Standards

- Describe the design characteristics of a safe and sanitary food service facility
- Identify common pests found in the food service environment
- Characterize the environments most liked by common pests
- Demonstrate methods for keeping pests away from food storage areas
- Identify common hazards to personal safety in the food service environment

Lesson Content

Facility Design Characteristics
- Factors to consider in facility design

Floors
- Materials
- Coving
- Other requirements

Walls and Ceilings
- Materials
- Fixtures

Storage Shelves and Containers
- Materials
- Distance from wall and floor

Windows and Doors
- Tight-fitting
- Solid or screened
Plumbing
- Prevent cross connection, backflow, back pressure, and back siphonage
- Devices: Air gap, vacuum breakers, double check valves

Grease Traps
- Accessible for cleaning

Restrooms
- Location
- Trash receptacles
- Separate restrooms for employees and customers

Waste Management
- Trash storage
- Containers: leak-proof, waterproof, pest-proof, durable, easy to clean
- Outside storage and container requirements

Ventilation Systems
- Design elements
- Checked regularly

Lighting
- Design elements

Learn more about the specific requirements for lighting in Appendix C!

Equipment Design Characteristics
- Meet the standards of National Sanitation Foundation (NSF), Underwriters Laboratory (UL) or American Gas Association (AGA)
- Consider the need for equipment, the cost, and the construction materials
- Ensure proper installation

Maintaining a First-Rate Facility
- Regular cleaning schedule
- Clean floors, walls, and ceilings
- Clean serving lines and stations
- Clean food storage areas
- Clean restrooms
- Separate trash collection areas
- Ensure proper ventilation

Did you know?
The German cockroach is the most common type found in kitchens.

Common Pests
- Cockroaches
- Flies
- Rodents
- Moths and beetles
Preventing Infestation
  • Lock them out
  • Keep it clean
  • Store it right

In the Event of an Infestation
  • Licensed pest control operators
  • Only use pesticides and poisons allowed by the health department

Exposure to Hazardous Chemical
  • Material Safety Data Sheets
  • Proper training
  • Safety equipment
  • Storage of chemical and cleaning supplies
  • Separate sinks for handwashing, food preparation, warewashing, and cleaning mops and brushes

Preventing Bioterrorism
  • Only approved employees
  • Visitor logs
  • Policies and procedures in place for suspicious activity
**Vocabulary**

**Backflow**—A backward flow of contaminated water, caused by back pressure or back siphonage, into a potable water supply

**Back pressure**—A type of backflow where contamination is forced into a potable water system through a connection that has a higher pressure than the water system

**Bioterrorism**—When harmful microorganisms are purposely put into food, water, etc. in order to make people sick and die

**Coving**—A curved, sealed 3/8-inch edge between the wall and the floor

**Cross connection**—Any physical link through which contamination from drains, sewers, or waste pipes can enter a potable water supply

**Garbage**—Waste that cannot be recycled

**Pest**—A troublesome animal or insect that often carries disease or filth into the food service environment

**Potable water**—Water that is safe to drink

**MSDS**—Material Safety Data Sheet, a summary of important information about a chemical provided by the manufacturer, which must be kept where employees can find it

**Refuse**—Solid waste, which is not disposed of through the sewage system

**Ventilation**—A system of exhaust fans, hoods, and filters designed to remove steam, smoke, grease, heat, and airborne contaminants from the air around food preparation areas and equipment
Activity

Times, Terms, and Temperatures to Remember

Description of Activity:

This activity is a review of many of the important times, terms, and temperatures that are important in food safety.

Give participants 10 to 15 minutes to complete as many of the times, terms, and temperatures as possible. This can also be done as a team activity. You may choose to have groups compete to get the most correct. Once everyone has had a chance to fill in as many as possible, go over the correct answers with the class.

The activity worksheet answer key can be found on the pages following the blank sheet and in Appendix Y.

When to pause the lesson: Because this activity is a review, it can be conducted at several different points. It can be done at the beginning or end of Lesson 4, or the beginning or end of Lesson 5. It can also serve as an introduction to the concepts they will encounter during the course, and be conducted at the beginning of the course, after Lesson 1.

Your Pause Point(s): ______________________________________________________

Supplies Needed:

- Copies of activity handout
Times, Terms, and Temperatures to Remember

Directions: Write a short answer describing the time, term, or temperature in the space provided.

1. 41 degrees to 135 degrees F

2. 4.6 to 7.5

3. 0 degrees F to 220 degrees F

4. Twenty seconds

5. 41 degrees F

6. 50% to 60%

7. 50 degrees F to 70 degrees F

8. Six inches

9. 165 degrees for 15 seconds

10. 155 degrees for 15 seconds

11. 145 degrees for 15 seconds

12. 130 degrees for 112 minutes

13. 135 degrees

14. 180 degrees
15. 170 degrees for 30 seconds
16. MSDS
17. HACCP
18. FIFO
19. CCP
20. FATTOM
21. 55 degrees to 120 degrees
22. Cross connection
23. Cross-contamination
24. IPM
25. Vacuum Breaker
26. Pasteurization
27. Ultra Pasteurized
28. Hermetically Sealed
29. Sanitizer
30. Infection
31. Intoxication ______________________________

32. Irradiation ______________________________
# Times, Terms, and Temperatures to Remember: Answer Key

1. 41 degrees to 135 degrees F  
   1. TDZ  
   Temperature Danger Zone

2. 4.6 to 7.5  
   2. pH or acidity danger zone

3. 0 degrees F to 220 degrees F  
   3. Display on a bi-metallic stemmed thermometer

4. Twenty seconds  
   4. Minimum amount of time to wash hands

5. 41 degrees F  
   5. Maximum cold holding temperature

6. 50% to 60%  
   6. Optimal % humidity in dry storage area

7. 50 degrees F to 70 degrees F  
   7. Dry storage temperature

8. Six inches  
   8. Distance that products must be stored off of the floor and away from the wall

9. 165 degrees for 15 seconds  
   9. Minimum cooking temperature for any combined food product, all poultry and minimum reheat temperature for all potentially hazardous foods

10. 155 degrees for 15 seconds  
    10. Minimum cooking temperature for ground beef and pork

11. 145 degrees for 15 seconds  
    11. Minimum cooking temperature for whole beef or pork roast, rare steak

12. 130 degrees for 112 minutes  
    12. Minimum internal temperature and time for rare roast beef (such as prime rib)

13. 135 degrees  
    13. Minimum holding temperature for hot foods

14. 180 degrees  
    14. Required minimum temperature for automatic dishwashing
15. 170 degrees for 30 seconds  
15. Minimum requirement for hot water sanitizing in manual dishwashing

16. MSDS  
16. Material Safety Data Sheet

17. HACCP  
17. Hazard Analysis and Critical Control Points

18. FIFO  
18. First In First Out

19. CCP  
19. Critical Control Point

20. FATTOM  
20. Acronym for “Food, Acidity, Time, Temperature, Oxygen, and Moisture” conditions necessary for bacterial growth

21. 55 degrees to 120 degrees  
21. Recommended temperature for chemical sanitizing in either hand washing or mechanical dishwashing

22. Cross connection  
22. A link between your drinkable water system and unsafe water or chemicals through which backflow can occur

23. Cross-contamination  
23. Transfer of harmful substances to food by hands, food-contact surfaces, or cleaning cloths that touch raw food, are not cleaned and sanitized, and then touch ready-to-eat food

24. IPM  
24. Integrated Pest Management

25. Vacuum Breaker  
25. Designed for use under a continuous supply of pressure. Spring-loaded device to operate after extended periods of hydrostatic pressure

26. Pasteurization  
26. A low heat treatment used to destroy disease-causing organisms and/or extend the shelf life of a product by destroying organisms and enzymes that cause spoilage
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>27. Ultra Pasteurized</td>
<td>A pasteurization that takes place using ultra-high temperatures and then the food item is placed in aseptic packaging</td>
</tr>
<tr>
<td>28. Hermetically Sealed</td>
<td>A container that is completely sealed against the entry of bacteria, molds, yeasts, and filth as long as it remains intact</td>
</tr>
<tr>
<td>29. Sanitizer</td>
<td>Approved substance or method to use when sanitizing</td>
</tr>
<tr>
<td>30. Infection</td>
<td>Illness caused by eating food that contains living disease-causing microorganisms</td>
</tr>
<tr>
<td>31. Intoxication</td>
<td>Illness caused by eating food that contains a harmful chemical or toxin</td>
</tr>
<tr>
<td>32. Irradiation</td>
<td>Exposure of food to low level radiation to prolong shelf life and eliminate pathogens</td>
</tr>
</tbody>
</table>
## Discussion Topics and Pause Points

<table>
<thead>
<tr>
<th>Discussion Questions</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why is important to have a well-designed facility? What are some features that we need to consider when it comes to floors, storage, lighting, and other design characteristics?</td>
<td>10</td>
</tr>
<tr>
<td>Is the lighting in your facility adequate?</td>
<td>50</td>
</tr>
<tr>
<td>Why do you think these characteristics are important?</td>
<td>51</td>
</tr>
<tr>
<td>What kind of cleaning schedule do you have at your facility?</td>
<td>73</td>
</tr>
<tr>
<td>What are some general ways to keep pests out of a facility?</td>
<td>90</td>
</tr>
<tr>
<td>What kind of information is in a Material Safety Data Sheet? What are some of the things in the kitchen that would have an MSDS? Where do you keep your MSDS?</td>
<td>99</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pause Points</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a group, review the information in Appendix C.</td>
<td>50</td>
</tr>
<tr>
<td>Ask if anyone knows the most common type of cockroach found in kitchens. If no one correctly identifies “German cockroach”, provide the class with the correct answer.</td>
<td>85</td>
</tr>
<tr>
<td>As a group, review some of the information in Appendix D.</td>
<td>91</td>
</tr>
</tbody>
</table>
Presentation Topics

The presentation topics (see box below) are to allow participants to share what they know with the class. They can use the Participant Manual, other food safety resources, and their own experience to talk about their topics. Either assign one group the entire topic, and have them answer the questions below, or assign questions to different groups.

Some suggested instructions to provide groups who will be presenting:

1. Choose the most important things about your topic that you think everyone should know. If you want, you can also share a story or experience you have had related to this topic.
2. Use flip chart paper, a chalkboard, or whiteboard to write down three to five key points. You can write short sentences, or just key words. These will help the class follow along with what you are talking about.
3. At the start of your presentation, introduce your question or presentation topic to the group by stating the question or topic you will be talking about. After you've stated your question or topic, proceed with your presentation.

Facilities and Maintenance:

- What are some of the important aspects of developing plans for a facility?
- What are important features of water supply and waste disposal systems?
- What is important for maintaining adequate ventilation?
- How do you maintain lighting in food preparation and storage areas?
- What are the important aspects of obtaining and maintaining equipment and supplies?
Lesson 4 Worksheet

1. Directions: Complete the crossword by filling in a word that fits each clue.

Across
2. When harmful microorganisms are purposely put into food, water, etc. in order to make people sick and die
3. ________ Connection: Any physical link through which contaminants from drains, sewers, or waste pipes can enter a potable water supply
5. Solid waste, which is not disposed of through the sewage system
7. Back ________: A type of backflow that occurs when a loss of pressure in the water supply causes dirty water or chemicals to be sucked back into the potable water supply.
10. Water that is safe to drink

Down
1. Material Safety Data Sheet, a summary of important information about a chemical provided by the manufacturer and which must be kept where employees can find it
2. A backward flow of contaminated water, caused by back pressure or back siphonage, into a potable water supply

Word Bank
- Backflow
- Bioterrorism
- Coving
- Cross
- Garbage
- MSDS
- Pest
- Potable
- Refuse
- Siphonage
- Ventilation
4. A troublesome animal or insect that often carries disease or filth into the food service environment
6. A system of exhaust fans, hoods, and filters designed to remove steam, smoke grease, heat, and airborne contaminants from the air around food preparation areas and equipment
8. A curved, sealed 3/8 inch-edge between the wall and the floor
9. Waste that cannot be recycled

2. A good floor plan can:
   A. Promote __________________
   B. Minimize ________________ traveled by employees
   C. Prevent _______ - ________________

3. An _______ _________ is the most dependable backflow prevention device.

4. Identify common pests found in the food service environment.
   I. ________________
   II. ________________
   III. ________________
   IV. ________________

5. Circle one: **Do** or **Do Not** install insect control devices over food preparation areas or in close proximity to exposed food and/or food-contact surfaces!

6. Which of the following statements is FALSE?
   a) Toilet facilities must be available for all employees.
   b) Employee toilet facilities must be conveniently located and accessible during working hours.
   c) Separate toilet facilities should be provided for men and women.
   d) Poor sanitation in toilet facilities will influence customer’s opinions about cleanliness, but will not promote the spread of disease.
7. The most effective device for protecting the potable water system from contamination by backflow is a (an)...
   a) Air gap
   b) Double check valve
   c) Reduced pressure backflow preventer
   d) Vacuum breaker

8. For air gaps, the vertical distance from the supply pipe (faucet) to the flood rim must be at least:
   a) Two times the diameter of the supply pipe, but never less than 1 inch.
   b) Two times the diameter of the supply pipe, but never less than 2 inches.
   c) Three times the diameter of the supply pipe, but never less than 1 inch.
   d) Four times the diameter of the supply pipe, but never less than 2 inches.

9. Which of the following statements is FALSE?
   a) Proper disposal and storage of garbage is needed to prevent food contamination and avoid pests.
   b) A trash receptacle must be provided in each area of the establishment where refuse is generated.
   c) Garbage receptacles must be durable, clean, nonabsorbent, leak-proof, and pest-proof.
   d) Trash may be stored outdoors in plastic bags provided the bags are stored at least 15 inches off the ground.

10. Which one of the following situations requires corrective action?
    a) A trash can with the lid off while in use
    b) A handwashing station with a multi-use cloth towel for hand drying
    c) Light colored ceramic tile being used for the walls of the food preparation area
    d) Anti-slip flooring provided in the dishwashing area

11. Back siphonage is likely to occur if:
    a) The pressure in the potable water system drops below that of a non-potable or contaminated water source.
    b) Contamination is forced into a potable water system through a connection that has a higher pressure than the water system.
    c) Pressure builds up in a sewer line due to blockage.
    d) The water seal in a kitchen trap is siphoned out.
12. The primary responsibility of food establishment managers in pest control is to ensure that:

   a) Everyone in the facility practices good sanitation principles that will prevent contamination of food and water, and eliminate areas for pests to hide.
   b) Pesticides are applied by licensed operators.
   c) The pest control operator they use employs integrated pest management.
   d) The garbage area is kept free of litter.

13. The best way to encourage employees to wash their hands when needed is to:

   a) Provide separate restrooms for employees and for customers.
   b) Provide handwashing stations near work areas.
   c) Provide hand sanitizers instead of handwashing lavatories in food preparation areas.
   d) Put up a sign in the employee locker room reminding them of proper handwashing.

14. Coving is a (an):

   a) Curved sealed edge between the floor and wall that eliminates sharp corners to make cleaning easier.
   b) Anti-slip floor covering used to protect workers from slips and falls.
   c) Plastic material used to seal cracks and crevices under and around equipment in a food establishment.
   d) Device used to prevent back siphonage.
Lesson 5: HACCP – Ensuring Food Safety at Every Step
Lesson Overview

Lesson Competency

Develop an understanding of ways to monitor and control hazards in the food production process using Hazard Analysis and Critical Control Points (HACCP)

Performance Standards

- Define HACCP and explain its importance in child nutrition programs
- Identify key phases and critical control points in the food preparation process
- Describe methods of controlling food safety hazards during each of the eight phases of the food preparation process: purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, and reheating
- Describe and compare the two most common types of food thermometers; know how to use and calibrate at least one

Lesson Content

Hazard Analysis and Critical Control Points
- Description
- Principles of HACCP

HACCP Principles
- Conduct a Hazard Analysis
- Determine the Critical Control Points
- Establish Critical Limits
- Establish Monitoring Procedures
- Establish Corrective Action
- Establish Verification Procedures
- Establish Recordkeeping and Documentation Procedures

Purchasing
- Choosing suppliers
Receiving Guidelines
- Identify supplies to keep handy when receiving a delivery
- Inspect the delivery truck
- Inspect delivery for appropriate temperatures, food specifications, and quality

Receiving:
- Meat
- Poultry
- Eggs
- Milk and dairy products
- Fresh produce
- Frozen food
- Canned food
- Dry food
- Fish
- Shellfish

Food Thermometers
- Types
- Features necessary
- Calibration methods

Transporting Food to Satellite Sites
- Use appropriate containers
- Keep hot foods hot, and cold foods cold
- Store food immediately

Food Storage
- Dry storage
- Refrigeration
- Deep-chilling units
- Freezer

Thawing
- In the refrigerator
- Under cool, clean running water

Cautions for Cold Food
- Preparing or holding cold food
- Handwashing and glove use
- Separating raw and ready-to-eat foods
- Using acceptable storage times

More information about requirements for shellfish tags and recordkeeping can be found in Appendix E!

Did you know?
Thermometers need to be calibrated weekly, and every time they are dropped.

Did you know?
Humidity levels in dry storage should be between 50% and 60%.

Don’t forget to label your foods with the name of the food and either the use-by date, or the date it was stored!
Taking Temperatures
- How and where to check the temperature of foods
- How to sanitize and air dry thermometers

Holding Hot and Cold Foods
- Keep hot foods hot, and cold foods cold
- Check temperatures
- Discard food held at room temperature for more than four hours

On the Front Line
- Guidelines for safe service of food

Sanitary Self-Service
- Guidelines for self-service

Cooling Hot Foods
- Chilling food quickly
- Utilizing cook-chill equipment

Reheating Food Safely
- Guidelines for reheating food

Food Process Flows
- No Cook
- Same Day Service
- Complex

See Appendix F for an easy-to-read table of minimum required cooking temperatures!

More detailed information on Complex Food Process Flow can be found in Appendix G!
Vocabulary

**Aseptic**—Clean, free of harmful microorganisms

**Cold storage units temperature monitoring**—Monitoring cold storage units by placing thermometers in the warmest area (usually by the door) and the coldest area (usually in the back) and sometimes including a read-out panel outside the unit to check the inside temperature without opening the door

**Control point**—A point in the food flow that needs to be controlled so that biological, chemical, or physical contamination does not occur

**Corrective action**—An action taken if a critical limit is not met

**Critical control point**—A point during the food flow where hazards can be prevented, eliminated, or reduced to acceptable levels

**Critical limits**—The boundaries set to make sure that a possible hazard is prevented, eliminated, or reduced to an acceptable level (for example, minimum internal cooking temperatures)

**Hazards**—A danger that is likely to cause illness or injury if not controlled

**Hazard Analysis and Critical Control Points (HACCP)**—A food safety system that focuses on identifying hazards within the flow of food in a food service operation and developing procedures to reduce the risk of foodborne illness and outbreaks

**Monitoring**—Establishing a procedure to determine if the critical limit is being met

**Pasteurization**—A process, used most often with milk, that destroys all disease-causing microorganisms and reduces the total number of bacteria, thus increasing shelf life

**Septic**—Contaminated or infected

**Time temperature indicator (TTI)**—A strip of liquid crystals that changes color when packaged goods reach an unsafe temperature

**UHT milk**—Milk pasteurized using ultra-high temperatures and packaged aseptically; products can be stored safely for several weeks if kept under refrigeration or for short periods with no refrigeration (for example, individual creamers)

**Verification**—The process by which you determine if established critical limits and corrective actions are preventing, eliminating, or reducing hazards to acceptable levels
Activities

Food Storage Safety

Description of Activity:

The purpose of this activity is to demonstrate the correct order that foods should be stored in the refrigerator.

Instruct participants to match the food item to its correct shelf in the refrigerator. Discuss the importance of proper storage in preventing foodborne illness.

When to Pause the Lesson: After slide 76

Your Pause Point(s): ________________________________________________________

Supplies Needed:

- Copies of activity handout

The activity worksheet answer key can be found in Appendix Z.
Food Storage Safety

You just received your delivery; write in the space provided next to each item which shelf it belongs on (one item per shelf) in the refrigerator. Be sure to have the correct order from top to bottom.
Check the Temp (Thermometer Calibration Activity)

Description of Activity:

Divide participants into groups of 4-5 by table. Depending on the number of available thermometers, give each group one or more analog and/or digital thermometers. Each group should also be given a plastic cup.

Off to the side of the room, set up an ice station for participants by placing one or more bowls of crushed ice on a table. Each group should send one person with the plastic cup to the ice station to fill the cup with ice and then with water. Instructions on how to calibrate analog thermometers are included on the next page. Manufacturer's instructions should be used to calibrate digital thermometers.

At the conclusion of this activity, discuss the importance of calibrating thermometers and how often they need to be calibrated.

When to pause the lesson: After slide 64

Your Pause Point(s): ______________________________________________________

Supplies Needed:

- Digital thermometers
- Manufacturer's instructions for calibrating the digital thermometer
- Analog thermometers
- Wrenches
- Crushed Ice
- Water
- Bowl for ice
- Cups
- Paper towels (for cleaning up spills)
- Copies of activity handout
- Copies of calibration handout (see following page)
How to Calibrate a Thermometer Using Two Methods

Ice Point Method:
- Fill a large glass with crushed ice. Add clean tap water until the glass is full and stir well.
- Put the thermometer stem or probe in the ice water mixture so that the entire sensing area is submerged. Do not let stem of the thermometer or probe touch the sides or bottom of the glass. Wait at least 30 seconds or until indicator stops moving.
- With the stem of the thermometer or probe still in the ice water mixture, use a wrench to turn the adjusting nut until the thermometer reads 32° (0°C). If calibrating a digital thermometer, press the retest button to automatically calibrate the thermometer.

Boiling Point Method:
- Bring clean tap water to a boil in a deep pan.
- Put the thermometer stem or probe into the boiling water so that the sensing area is completely submerged. Do not let the stem or probe touch the bottom or sides of the pan. Wait at least 30 seconds or until indicator stops moving.
- With the thermometer stem or probe still in the water, use a wrench to turn the adjusting nut until the thermometer reads 212°F (100°C). If calibrating a digital thermometer, press the reset button to automatically calibrate the thermometer.
Check the Temp

Select one thermometer from the table and calibrate it following the instructions provided.

How to Calibrate a Thermometer: Ice Point Method

- Fill a large glass with crushed ice. Add clean tap water until the glass is full and stir well.
- Put the thermometer stem or probe in the ice water mixture so that the entire sensing area is submerged. Do not let stem of the thermometer or probe touch the sides or bottom of the glass. Wait at least 30 seconds or until indicator stops moving.
- With the stem of the thermometer or probe still in the ice water mixture, use a wrench to turn the adjusting nut until the thermometer reads 32° (0°C). If calibrating a digital thermometer, press the retest button to automatically calibrate the thermometer.

Why is it important to calibrate thermometers regularly?

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

When should a thermometer be calibrated?

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
Food Safety Jeopardy

Instructions:

Divide participants into groups of 4-5. Give them each a team name, or have each team name themselves. Write the team names on a flip chart. Use this flip chart to keep track of the scores.

To start the game, open the Food Safety Jeopardy.ppt file. Click on the “slide show” button. This will take you to the game board on the first screen.

Have a group choose which topic and point level they would like to answer (e.g. “pot-pouri” for 500). Click on that box on the game board. This will take you to the answer. The group will then need to provide the corresponding question as a response to earn the points. Click anywhere on the screen to go to the correct response. To return to the game board, click on the image of a germ in the bottom right-hand corner of the screen.

Repeat steps until the game is finished.

When to Pause the Lesson: After the end of Lesson 5.

Your Pause Point(s): ______________________________________________________

Supplies and Equipment Needed:

- Laptop computer
- Computer projector
- PowerPoint software
- Food Safety Jeopardy File
- Flip chart
- Markers
- Prizes for winning team(s)
## Discussion Topics and Other Pause Points

<table>
<thead>
<tr>
<th>Discussion Questions</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you familiar with your HACCP plan?</td>
<td>24</td>
</tr>
<tr>
<td>What did Mary do right? What did Mary do wrong?</td>
<td>36</td>
</tr>
<tr>
<td>What is the safest way to thaw frozen foods? Are there other safe ways to thaw? What methods of thawing should never be used? Why?</td>
<td>76</td>
</tr>
<tr>
<td>What do you do with your leftovers? Do you keep them for a week? How are they labeled?</td>
<td>83</td>
</tr>
<tr>
<td>Where did Marge go wrong?</td>
<td>86, 89</td>
</tr>
<tr>
<td>Was the salad completed and delivered safely? What would you do instead?</td>
<td>92</td>
</tr>
<tr>
<td>Where did Veronica go wrong?</td>
<td>104</td>
</tr>
<tr>
<td>What are some examples of complex process foods you serve? How do you keep them safe?</td>
<td>130</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pause Points</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>If participants are completing the worksheet while watching the videos, pause after the vocabulary section to give everyone a chance to finish the vocabulary crossword puzzle.</td>
<td>13</td>
</tr>
<tr>
<td>Bring copies of the district HACCP plan, and go through how it meets the guidelines. Point out critical control points.</td>
<td>24</td>
</tr>
<tr>
<td>As a group, review the information in Appendix E.</td>
<td>59</td>
</tr>
<tr>
<td>Ask the class if anyone can identify when thermometers need to be calibrated. If no one correctly identifies “weekly, and every time they are dropped” provide the answer to the class.</td>
<td>64</td>
</tr>
<tr>
<td>Let participants know that humidity is also important in dry storage, and needs to be between 50% and 60%.</td>
<td>70</td>
</tr>
<tr>
<td>Ask participants what needs to be on a label. If no one correctly identifies “name of the food and either date stored or use-by date” provide the answer to the class.</td>
<td>72</td>
</tr>
<tr>
<td>Have participants flip to Appendix F while going through the table on Slide 99.</td>
<td>98</td>
</tr>
<tr>
<td>Point out that more information on Complex Food Process Flow can be found in Appendix G.</td>
<td>129</td>
</tr>
</tbody>
</table>
Presentation Topics

The presentation topics (see boxes below) are to allow participants to share what they know with the class. They can use the Participant Manual, other food safety resources, and their own experience to talk about their topics. Either assign one group the entire topic, and have them answer the questions below, or assign questions to different groups.

Some suggested instructions to provide groups who will be presenting:

1. Choose the most important things about your topic that you think everyone should know. If you want, you can also share a story or experience you have had related to this topic.
2. Use flip chart paper, a chalkboard, or whiteboard to write down three to five key points. You can write short sentences, or just key words. These will help the class follow along with what you are talking about.
3. At the start of your presentation, introduce your question or presentation topic to the group by stating the question or topic you will be talking about. After you’ve stated your question or topic, proceed with your presentation.

Hazard Analysis and Critical Control Points:
- **What does HACCP stand for?**
- **What are the HACCP principles?**
- **What is a critical control point?**
- **How do you implement a food safety plan?**
- **How do you train the food establishment staff?**
- **How do you make sure your establishment is following regulations?**

Flow of Food:
- **What should you note when purchasing and receiving products?**
- **How should you store and display food products to keep them safe?**
- **How do you safely serve food or manage the self-service of food?**
- **How do you manage the transportation and delivery of food?**
- **How do you monitor foods while they are being prepared to ensure that they’re safe?**
### Lesson 5 Worksheet

*Match the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clean, free of harmful microorganisms</td>
<td>A. Hazard</td>
</tr>
<tr>
<td>2. Monitoring cold storage units by placing thermometers in the warmest area (usually by the door) and the coldest area (usually in the back) and sometimes including a read-out panel outside the unit to check the inside temperature without opening the door</td>
<td>B. Control point</td>
</tr>
<tr>
<td>3. A point in the food flow that needs to be controlled so that biological, chemical, and physical contamination does not occur</td>
<td>C. Food Process Flow</td>
</tr>
<tr>
<td>4. An action taken if a critical limit is not met</td>
<td>D. Aseptic</td>
</tr>
<tr>
<td>5. A point during the food flow where hazards can be prevented, eliminated, or reduced to acceptable levels</td>
<td>E. Critical control point</td>
</tr>
<tr>
<td>6. The boundaries set to make sure that a possible hazard is prevented, eliminated, or reduced to an acceptable level</td>
<td>F. Corrective Action</td>
</tr>
<tr>
<td>7. The path that food follows from receiving through serving</td>
<td>G. Cold Storage units temperature monitoring</td>
</tr>
<tr>
<td>8. A danger that is likely to cause illness or injury if not controlled</td>
<td>H. Critical limits</td>
</tr>
</tbody>
</table>
Match the definition to the correct word.

9. A food safety system that focuses on identifying hazards within the flow of food in a food service operation and developing procedures to reduce the risk of foodborne illness and outbreaks

10. Establishing a procedure to determine if the critical limit is being met

11. A process, used most often with milk, that destroys all disease-causing microorganisms and reduces the total number of bacteria, thus increasing shelf life

12. Contaminated or infected

13. A strip of liquid crystals that changes color when packaged goods reach an unsafe temperature

14. Milk pasteurized using ultra-high temperatures and packaged aseptically

15. Determines if established critical limits and corrective actions are preventing, eliminating, or reducing hazards to an acceptable level

16. What does HACCP stand for?

H _____________________________
A _____________________________
C _____________________________
C _____________________________
P _____________________________
17. HACCP is a system to help prevent foodborne illness through…

A. Proper ______________ handling

B. M______________

C. Record______________

The Seven HACCP Principles:

1. Conduct a ________________

2. Determine the critical control points
   The most common critical control points are:

A. _________________________

B. _________________________

C. _________________________

D. _________________________

3. Establish ________________ limits

4. Establish ________________ procedures

5. Establish ________________ actions

6. Establish ________________ procedures

7. Establish ____________ and ________________ procedures
18. The eight steps of the food service process are:

1. _________________________
2. _________________________
3. _________________________
4. _________________________
5. _________________________
6. _________________________
7. _________________________
8. _________________________

19. The two most common food thermometer types are:

I. _________________________
II. _________________________

The two calibration methods are:

I. _________________________
II. _________________________

20. The temperature of frozen food should be measured by…

   a) Inserting the sensing probe into the center of a package until the temperature stabilizes.
   b) Inserting the sensing probe between two packages until the temperature stabilizes.
   c) Measuring the ambient temperature of the frozen food compartment of the delivery vehicle.
   d) Looking for signs of freezing and thawing, such as large ice crystals or frozen juices in the box.
21. Frozen foods should not be accepted at a food establishment if...
   a) They have large ice crystals on the surface.
   b) The package is intact.
   c) The temperature is below 32 °F.
   d) The temperature of the delivery truck is 32 °F.

22. Which practice requires corrective action?
   a) Products in the dry storage area are being rotated on a first-in, first-out stock basis.
   b) Foods stored in the walk-in freezer are stored on slatted shelves that are 6 inches above the floor.
   c) Raw beef is stored above salad in the refrigerator.
   d) Pesticides are stored in a locked and labeled cabinet in the dry food storage area.

23. Which of the following is the preferred method for thawing potentially hazardous foods?
   a) In the microwave oven
   b) At room temperature
   c) In the refrigerator
   d) On the counter

24. Hot foods should be held at _______ or above and cold foods should be held at _______ or below.
   a) 165 °F; 41 °F
   b) 165 °F; 32 °F
   c) 135 °F; 41 °F
   d) 135 °F; 32 °F

25. Poultry and stuffed meats should be cooked to an internal temperature of _______ for 15 seconds to be considered safe.
   a) 140 °F
   b) 145 °F
   c) 155 °F
   d) 165 °F
26. Ground beef should be cooked to an internal temperature of _______ for 15 seconds to be considered safe.
   a) 140 °F  
   b) 145 °F  
   c) 155 °F  
   d) 165 °F

27. Regardless of the type of food, all potentially hazardous foods that have been cooked and cooled need to be reheated to an internal temperature of _______ within 2 hours to be considered safe.
   a) 140 °F  
   b) 145 °F  
   c) 155 °F  
   d) 165 °F

28. All foods that are to be held cold must be held at _______ or below.
   a) 41 °F  
   b) 50 °F  
   c) 70 °F  
   d) 0 °F

29. The Hazard Analysis and Critical Control Points (HACCP) system should be employed...
   a) Whenever potentially hazardous foods are prepared.
   b) Only in institutional foods facilities that provide food for very young or elderly consumers.
   c) Only in convenience stores where mechanical dishwashing equipment is not available.
   d) Only when foods are sold for consumption off site.

30. Which is an example of a critical control point?
   a) Poultry purchased from approved sources.
   b) Chicken and noodles are heated on the stove until the center of the poultry reaches 165 °F for 15 seconds.
   c) Only pasteurized milk is used by the school.
   d) The cutting board is washed and sanitized between chopping carrots and celery for the garden salad.
Supplemental Lesson: Food Allergies and Food Intolerances
Note about the Supplemental Lesson: Food Allergies and Food Intolerances

This lesson is currently not available as an online course lesson, and consists of a PowerPoint presentation, a script, and two activities. It requires the instructor to present it as a separate PowerPoint presentation, or alternatively, participants could read the slides and script on their own to learn the material. While it is an optional lesson, it goes into greater depth on food allergies and intolerances than the online course, and includes material that is found on food safety manager exams.

Lesson Competency

Develop an understanding of the causes and symptoms of food allergies and intolerances, and the responsibilities of food service establishments in preventing life-threatening reactions

Performance Standards

• Describe the differences between food allergies and food intolerances
• Identify the eight most common food allergens
• Identify school nutrition program responsibilities and requirements for accommodating children with food allergies or intolerances
• Demonstrate methods for managing food allergies

Lesson Content

Food Allergies
• Description
• Symptoms
• Anaphylaxis
• Most common food allergies

Food Intolerance
• Description
• Celiac disease
• Lactose intolerance
Federal Requirements for National School Lunch and School Breakfast Programs
- Medical Statement to Request Special Meals and/or Accommodations
- Recognized medical authorities
- Accommodations for children with food allergies or intolerances

Food Allergy Management Plan
- Questions to consider when developing a food allergy management plan
- Guidelines for management of food allergies in the kitchen and cafeteria

Cross Contact
- Description
- Prevention

Food Allergy HACCP
- Adapting HACCP principles for food allergies
**Vocabulary**

**Food allergy**—A specific type of immune system response to a food

**Allergen**—A substance that causes an allergic reaction

**Antibodies**—A protein in the body that reacts and attaches to specific substances

**Antigen**—A protein or other substance that antibodies attach to

**Mast cells**—A type of immune system cell found in body tissues

**Basophils**—A type of immune system cell found in blood

**Immunoglobin E (IgE)**—A type of antibody found on basophils and mast cells

**Anaphylaxis**—A severe allergic reaction that results in a drop in blood pressure and difficulty breathing

**Food intolerance**—A sensitivity to a food that does not involve IgE

**Celiac disease**—An immune system reaction to gluten that causes damage to the lining of the intestine

**Lactose intolerance**—Inability to digest lactose

**Medical Statement to Request Special Meals and/or Accommodations**—Required form when meal accommodations are made to ensure they are reimbursable

**Cross contact**—When allergens from a food are transferred to another food
Activities

Allergies and Food Labels Activity

Description of Activity:

The purpose of this activity is to demonstrate how to read a label to check for allergens.

This activity will require one or more labels from your kitchen. You can use either the packaging itself, or you can use photocopies. Be sure to provide the entire label, so that participants can answer all of the activity questions. You may want to find products that have unexpected allergens to demonstrate how foods can have allergens we may not expect to find based on the name of the product.

Break participants into groups. Give each group a package or label to use for the activity. Have the groups answer the activity questions using the label provided. You may wish to have them report their findings back to the class.

When to pause the lesson: After slide 36.

Your Pause Point(s): ______________________________________________________

Supplies needed:

- Labels, packaging, or photocopies of either
- Copies of activity handouts
Allergies and Food Labels Activity

This activity will use food labels you may have seen in the kitchen before. Using the label provided to you, answer each one of the questions below.

1. What is the name of the product you are checking for allergens?

2. Before you look at the label, what allergens would you expect this product to have?

3. Now, looking at the packaging, are any of the eight common allergens listed in the ingredient list? If yes, what are they?

4. Do the allergens listed match up with what you expected them to be?

5. Now look to see if the allergens are listed separately. If they are, do the listed allergens match up with what you found in the ingredient list? What are the allergens listed separately from the ingredient list?

6. Does the label list any information about being manufactured on shared equipment? If yes, what might the product contain in addition to the allergens you already found?

7. Did this product have any unexpected allergens in it? If yes, what were they?
Allergy Recipe Activity

Description of Activity:

The purpose of this activity is for participants to practice going through a recipe and identifying common allergens, possible hidden allergens, and places where cross contact may occur.

This activity can be completed individually, in groups, or as a class.

When to pause the lesson: This activity goes along with slides 56 through 61. They can follow along with these slides for steps 1 and 2 of the activity. Pause after slide 61 for steps 3 and 4.

Your Pause Point(s): _____________________________________________________________________

Supplies needed:

- Copies of activity handout
Allergy Recipe Activity

On the recipe below, identify the following:
1. Common allergens
2. Ingredients that may contain hidden allergens
3. Whether or not an ingredient or direction has the potential for cross contact.
4. Whether or not a recipe step has the potential for cross contact.

Breakfast Burrito

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Weight or Measure (50 servings)</th>
<th>Common Allergen? (Yes or No)</th>
<th>Hidden Allergen? (Yes or No)</th>
<th>Cross Contact Risk? (Yes or No, and Why)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh large eggs</td>
<td>45 each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frozen whole-kernel corn</td>
<td>1 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low fat 1% milk</td>
<td>¾ cup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh green peppers, diced</td>
<td>8 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh onions, diced</td>
<td>14 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh tomatoes diced</td>
<td>2 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow mustard</td>
<td>¼ c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot pepper sauce</td>
<td>1 Tbsp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt</td>
<td>2 tsp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced fat cheddar cheese</td>
<td>10 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flour tortillas</td>
<td>50 each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directions</td>
<td>Cross Contact Risk? (Yes or No, and Why)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a mixer, using the paddle attachment, blend eggs, corn, milk, green peppers, onions, tomatoes, prepared mustard, hot pepper sauce, and salt.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pour 1 gal 2 cups of the above egg mixture into each steamtable pan (12&quot; x 20&quot; x 2 ½&quot;), which has been lightly coated with pan release spray. For 50 servings, use 2 pans. Cover with foil or metal lid.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Bake:  
Conventional oven: 350° F for 60 minutes.  
Convection oven: 325° F for 50 minutes.  
Steamer: 30 minutes.  
CCP: Heat to 145° F or higher for 3 minutes. |  |
| Sprinkle 5 oz. (1 ¼ cups) cheese on top of each pan. Cut each pan 5 x 5 (25 portions per pan). |  |
| Place one portion in center of each tortilla. Fold from bottom first, sides second, and top third, like an envelope. Place 25 tortillas flap side down into each steamtable pan (12" x 20" x 2 ½"). For 50 servings, use 2 pans. |  |
| Heat:  
Compartment steamer: for 2-3 minutes.  
Conventional oven: 300° F for 3 minutes covered with a clean damp cloth.  
Convection oven: 300° F for 3 minutes covered with a clean damp cloth. |  |
| CCP: Hold for hot service at 135° F or higher. |  |
### Discussion Topics and Other Pause Points

<table>
<thead>
<tr>
<th>Discussion Questions</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you noticed an increase in kids with food allergies over the years? How has this impacted your school?</td>
<td>5</td>
</tr>
<tr>
<td>What kind of accommodations do you make for kids with food allergies or food intolerances?</td>
<td>23</td>
</tr>
<tr>
<td>Does this meet the requirements?</td>
<td>30</td>
</tr>
<tr>
<td>What do you think is the cause of Geneva's rash? How could this be prevented?</td>
<td>40</td>
</tr>
</tbody>
</table>

There are no recommended Pause Points in this lesson, but you can use the table below to add your own.

<table>
<thead>
<tr>
<th>Pause Points</th>
<th>Stop after slide #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Presentation Topics

The presentation topics (see box below) are to allow participants to share what they know with the class. They can use the Participant Manual, other food safety resources, and their own experience to talk about their topics. Either assign one group the entire topic, and have them answer the questions below, or assign questions to different groups.

Some suggested instructions to provide groups who will be presenting:

1. Choose the most important things about your topic that you think everyone should know. If you want, you can also share a story or experience you have had related to this topic.
2. Use flip chart paper, a chalkboard, or whiteboard to write down three to five key points. You can write short sentences, or just key words. These will help the class follow along with what you are talking about.
3. At the start of your presentation, introduce your question or presentation topic to the group by stating the question or topic you will be talking about. After you’ve stated your question or topic, proceed with your presentation.

Food Allergens:

- What are the differences between food allergies and food intolerances?
- What are the eight most common food allergens?
- What are the key parts of a food allergen plan?
**Supplemental Lesson Worksheet**

Match the definition to the correct word.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A specific type of immune system response to a food</td>
<td>A. Immunoglobulin E (IgE)</td>
</tr>
<tr>
<td>2. A substance that causes an allergic reaction</td>
<td>B. Celiac disease</td>
</tr>
<tr>
<td>3. A protein in the body that reacts and attaches to specific substances</td>
<td>C. Food allergy</td>
</tr>
<tr>
<td>4. A protein or other substance that antibodies attach to</td>
<td>D. Anaphylaxis</td>
</tr>
<tr>
<td>5. A type of immune system cell found in body tissues</td>
<td>E. Basophils</td>
</tr>
<tr>
<td>6. A type of immune system cell found in blood</td>
<td>F. Antibodies</td>
</tr>
<tr>
<td>7. A type of antibody found on basophils and mast cells</td>
<td>G. Cross-contact</td>
</tr>
<tr>
<td>8. A severe allergic reaction that results in a drop in blood pressure and difficulty breathing</td>
<td>H. Medical Statement to Request Special Meals and/or Accommodations</td>
</tr>
<tr>
<td>9. A sensitivity to a food that does not involve IgE</td>
<td>I. Allergen</td>
</tr>
<tr>
<td>10. A immune system reaction to gluten that causes damage to the lining of the intestine</td>
<td>J. Lactose intolerance</td>
</tr>
<tr>
<td>11. Inability to digest lactose</td>
<td>K. Antigen</td>
</tr>
<tr>
<td>12. Required form when meal accommodations are made to insure they are reimbursable</td>
<td>L. Food intolerance</td>
</tr>
<tr>
<td>13. When allergens from a food are transferred to another food</td>
<td>M. Mast cells</td>
</tr>
</tbody>
</table>
14. _______________________________ is the most dangerous food allergy reaction, because it can result in death if not treated quickly.

15. The eight most common food allergies are:

1) _______________________
2) _______________________
3) _______________________
4) _______________________
5) _______________________
6) _______________________
7) _______________________
8) _______________________

16. Those with celiac disease need to avoid:

i. _______________________
ii. _______________________
iii. _______________________
iv. _______________________

17. Developing a Food Allergy Management Plan:

- Have a written _________ for how you will handle food allergies
- Know what to _________ and substitute
- Read _________
- _________ the kitchen and cafeteria
- Identify the _________
- Develop _______________ procedures
18. Which of the following is one of the most common food allergies?
   a) Gluten
   b) Strawberries
   c) Wheat
   d) MSG

19. Food allergies are mediated by which of the following?
   a) Immunoglobin E (IgE)
   b) Immunoglobin G (IgG)
   c) Histamine
   d) Epinephrine

20. Which of the following is NOT a symptom of a food allergy?
   a) Itchiness in the mouth
   b) Rash or hives
   c) Runny nose
   d) Fever

21. Which of the following statements about anaphylaxis is true?
   a) It is a symptom of celiac disease.
   b) It is only caused by peanut allergies.
   c) It can result in death if not treated.
   d) It is treated with antihistamines.

22. People with celiac disease need to avoid which of the following?
   a) Wheat, Rice, Oats, and Barley
   b) Wheat, Rye, Oats, and Barley
   c) Rye, Rice, Oats, and Lactose
   d) Wheat, Lactose, Casein, and Whey

23. Which of the following can sign a Medical Statement to Request Special Meals and/or Accommodations?
   a) Registered nurse
   b) Registered dietitian
   c) Licensed pharmacist
   d) Licensed physician
24. Which of the following is TRUE about accommodating food allergies and intolerances?

   a) Agencies are required to make accommodations for all allergies and intolerances.
   b) Accommodations for food intolerances do not require a signed medical statement.
   c) A food allergy that results in a severe, life-threatening reaction is considered a disability.
   d) A note on a physician’s letterhead can substitute for a signed medical statement.

25. What is it called when a food that does not contain an allergen comes into contact with a food that does?

   a) Cross contact
   b) Cross-contamination
   c) Hidden allergen
   d) Control point
Food Safety Certification Exam Options

The California Retail Food Code (CRFC) states:

Food facilities that prepare, handle, or serve nonprepackaged potentially hazardous food, except temporary food facilities, shall have an owner or employee who has successfully passed an approved and accredited food safety certification examination as specified in Sections 113947.2 and 113947.3. There shall be at least one food safety certified owner or employee at each food facility.

The CRFC also states:

Food safety certification required pursuant to Section 113947.1 shall be achieved by successfully passing an examination from an accredited food protection manager certification organization. The certification organization shall be accredited by the American National Standards Institute as meeting the requirements of the Conference for Food Protection’s “Standards for Accreditation of Food Protection Manager Certification Programs.”

As of June 16, 2014, the American National Standards Institute has certified four organizations. If you would like to take a certified exam, all of these organizations list on their websites nearby testing stations. Some are listed by State and County, and others allow search by Zip Code.

1. 360training.com, Inc.
   • Learn2Serve® Food Protection Manager Certification Program
   • http://www.learn2serve.com/food-manager-certification
   • To find a testing center near you, click on “Locate a Test Center” and search by Zip Code. Instructions are provided on how to schedule an exam.

2. National Registry of Food Safety Professionals
   • Food Protection Manager Certification Program
   • International Certified Food Safety Manager
   • http://www.nrfsp.com/
   • To search for a NRFSP exam near you, visit http://www.nrfsp.com/NRFSP/Examinee%20Information/Examination%20Trainer%20Locator.aspx
   • You will be able to select your state and county to view a list of training and exam providers in your county.

3. National Restaurant Association
   • ServSafe® Food Protection Manager Certification Program
   • http://www.servsafe.com/home
   • To search for a ServSafe exam near you, visit http://www.servsafe.com/ss/Search/TrainingSearchIP.aspx?aliaspath=/Special-Pages/ssredirect
   • You will be able to view a list of training and exam providers in your state.
4. Prometric Inc.
   - Food Protection Manager Certification Program
   - To search for a Food Protection Manager Certification Program Exam near you, visit
   - You will be able to search for nearby exams by Zip Code.

For more information, visit:

http://www.cdph.ca.gov/programs/pages/fdbRetailFoodProgram.aspx
https://www.ansica.org/wwwversion2/outside/ALLdirectoryListing.asp?menuID=8&prgID=8&status=4
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Symptoms</th>
<th>Time to Onset</th>
<th>Food Sources</th>
<th>Preventive Measures</th>
</tr>
</thead>
</table>
| **Bacillus cereus**          | Intoxication or toxin-mediated infection | Causes two types of illness:  
1. Vomiting type: primarily causes nausea and vomiting, but may also cause diarrhea.  
2. Diarrhea type: Abdominal cramps and diarrhea | 1. Vomiting type: 30 minutes to 6 hours  
2. Diarrhea type: 8 to 16 hours | 1. Vomiting type: Starchy foods, such as rice, potatoes, pasta, grains.  
2. Diarrhea type: Meat, milk, stews, gravies | Time and Temperature Control: Properly cook, cool, and reheat foods |
| **Campylobacter jejuni**     | Infection                         | Abdominal cramps, diarrhea (sometimes bloody), fever, and vomiting                                                                                                                                         | 2 to 5 days     | Poultry, unpasteurized milk, contaminated water                                                  | Time and Temperature Control: Properly cook, cool, and reheat foods. Use potable water from non-contaminated sources |
| **Clostridium botulinum**    | Intoxication                      | Causes botulism. Vomiting, diarrhea, blurred or double vision, muscle weakness, difficulty speaking and swallowing. Can cause respiratory failure and death. | 12 to 36 hours  | Improperly canned foods, untreated oil and garlic mixtures, baked potatoes, fermented fish, modified atmosphere packaged food, sous vide foods, vacuum-packed meats | Time and Temperature Control: Properly cook, cool, and reheat foods. Do not use home-canned foods. Properly heat-process anaerobically-packed foods. |
| **Clostridium perfringens**  | Intoxication                      | Diarrhea, abdominal cramps, sometimes nausea or vomiting                                                                                                                                                | 8 to 22 hours   | Meat, stews, beans, gravy                                                                         | Time and Temperature Control: Properly cook, cool, and reheat foods. |

Bacteria, Viruses, Parasites, and Toxins that Cause Foodborne Illness
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Symptoms</th>
<th>Time to Onset</th>
<th>Food Sources</th>
<th>Preventive Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Escherichia coli</strong></td>
<td>Infection or toxin-mediated infection</td>
<td>Abdominal pain, diarrhea (sometimes bloody), vomiting. Severe cases: kidney failure and hemolytic uremic syndrome (HUS) in severe cases</td>
<td>1 to 8 days</td>
<td>Undercooked meat, unpasteurized milk and juice, lettuce, alfalfa sprouts, contaminated water</td>
<td>Time and Temperature Control: Properly cook, cool, and reheat foods. Proper handwashing. Proper sanitation. Avoid cross-contamination</td>
</tr>
</tbody>
</table>
| **Listeria monocytogenes** (note: can grow at refrigerator temperatures) | Infection | 1. Healthy adults: Fever muscle aches, nausea, diarrhea  
2. Immune-compromised, elderly: septicemia, meningitis, encephalitis.  
3. In pregnant women: birth defects, miscarriage, stillbirth | 1 day to 6 weeks | Raw milk, unpasteurized cheeses, dairy items, ready-to-eat deli meats, processed ready-to-eat meats, raw vegetables, raw melon, seafood | Time and Temperature Control: Properly cook, cool, and reheat foods. Avoid cross-contamination Use only pasteurized milk and cheese. Wash produce thoroughly |
| **Salmonella species**                    | Infection | Diarrhea, fever, abdominal cramps, nausea, vomiting                       | 6 to 48 hours | Eggs, poultry, meat, unpasteurized milk or juice, cheese, contaminated raw fruits (such as raw melon) and vegetables | Time and Temperature Control: Properly cook, cool, and reheat foods. Avoid cross-contamination |
| **Shigella species**                      | Infection | Diarrhea, fever, abdominal cramps. Stools may contain blood and mucus.   | 1 to 7 days   | Cold salads (e.g. tuna, egg, chicken), raw produce, foods handled by an infected food handler | Time and Temperature Control: Properly cook, cool, and reheat foods. Avoid cross-contamination Proper handwashing. Wash produce thoroughly |
| **Staphylococcus aureus**                 | Intoxication | Diarrhea, fever, abdominal cramps, nausea, vomiting                      | 1 to 6 hours  | Cream pastries, Improperly refrigerated meats, cold salads (e.g. tuna, egg, chicken) | Proper handwashing. Good personal hygiene. Time and Temperature Control: Properly cook, cool, and reheat foods. |
### Viruses

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Symptoms</th>
<th>Time to Onset</th>
<th>Food Sources</th>
<th>Preventive Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A</td>
<td>Viral infection</td>
<td>Diarrhea, fever, abdominal cramps, nausea,</td>
<td>10 to 50 days</td>
<td>Shellfish, salads, ready-to-eat food, fruit and juice, milk products, vegetables, ice, foods handled by an infected food handler, contaminated water.</td>
<td>Proper handwashing. Good personal hygiene. Avoid cross-contamination. Use approved sources for shellfish. Proper sanitation. Use potable water from non-contaminated sources.</td>
</tr>
<tr>
<td>Norovirus or Norwalk</td>
<td>Viral infection</td>
<td>Diarrhea, fever, abdominal cramps, nausea</td>
<td>24 to 48 hours</td>
<td>Contaminated water, contaminated salad ingredients, raw clams, raw oysters, foods handled by infected food handlers</td>
<td>Proper handwashing. Good personal hygiene. Avoid cross-contamination. Use potable water from non-contaminated sources</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Viral infection</td>
<td>Diarrhea, fever, abdominal cramps, nausea</td>
<td>24 to 72 hours</td>
<td>Water, ice, ready-to-eat foods, salads, foods handled by infected food handlers</td>
<td>Good personal hygiene. Avoid cross-contamination. Cook foods thoroughly. Use potable water from non-contaminated sources</td>
</tr>
</tbody>
</table>
## Parasites

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Symptoms</th>
<th>Time to Onset</th>
<th>Food Sources</th>
<th>Preventive Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichinella spiralis</td>
<td>Parasite infection</td>
<td>Diarrhea, fever, nausea, fatigue,</td>
<td>2 to 28 days</td>
<td>Raw or undercooked pork, or wild game.</td>
<td>Cook foods thoroughly. Purchase meat from approved sources. Proper sanitation.</td>
</tr>
<tr>
<td>Anisakis simplex</td>
<td>Parasite infection</td>
<td>Coughing, fever, abdominal cramps, vomiting</td>
<td>1 hour to 2 weeks</td>
<td>Raw or undercooked seafood</td>
<td>Purchase seafood from approved sources. Freeze fish to be eaten raw for 7 days.</td>
</tr>
<tr>
<td>Giardia duodenalis</td>
<td>Parasite infection</td>
<td>Diarrhea, gas, abdominal cramps, nausea, weight loss, fatigue</td>
<td>24 to 72 hours</td>
<td>Contaminated water and ice, produce washed in contaminated water</td>
<td>Good personal hygiene. Use potable water from non-contaminated sources. Wash produce thoroughly.</td>
</tr>
</tbody>
</table>
Bacteria, Viruses, Parasites, and Toxins that Cause Foodborne Illness

**Toxins**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Symptoms</th>
<th>Time to Onset</th>
<th>Food Sources</th>
<th>Preventive Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciguatoxin</td>
<td>Fish toxin originating from toxic algae in</td>
<td>Vertigo, shortness of breath, nausea, hot and cold flashes, diarrhea,</td>
<td>15 minutes to</td>
<td>Finfish from contaminated waters.</td>
<td>Purchase fish from approved sources.</td>
</tr>
<tr>
<td>(cooking will NOT</td>
<td>tropical waters</td>
<td>vomiting</td>
<td>24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inactivate the toxin)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scombrotin</td>
<td>Seafood toxin originating from histamine-</td>
<td>Dizziness, shortness of breath, burning feeling in mouth, facial rash</td>
<td>1 to 30 minutes</td>
<td>Tuna, mahi mahi, bluefish, sardines, amberjack, mackerel, anchovies,</td>
<td>Purchase fish from approved sources; store fish between 32 degrees and 39 degrees</td>
</tr>
<tr>
<td>(cooking will NOT</td>
<td>producing bacteria</td>
<td>burning feeling in mouth, facial rash or hives, peppery taste in mouth,</td>
<td></td>
<td>abalone, Swiss cheese</td>
<td>temperatures to prevent the growth of histamine-producing bacteria</td>
</tr>
<tr>
<td>inactivate the toxin)</td>
<td></td>
<td>headache, itching, teary eyes, runny nose</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:


## Requirements for Lighting Intensity

The California Retail Food Code (Cal Code) requires that certain areas of the facility meet certain lighting requirements so that employees can safely perform certain tasks.

<table>
<thead>
<tr>
<th>Where</th>
<th>Required Lighting Level in Foot-Candles</th>
<th>Required Lighting Level in Lux</th>
<th>Measured where?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk-in refrigeration units</td>
<td>10 foot-candles</td>
<td>108 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>Dry food storage areas</td>
<td>10 foot-candles</td>
<td>108 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>Inside equipment, such as reach-in or under-the-counter refrigerators</td>
<td>10 foot-candles</td>
<td>108 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>At a surface where food is provided for consumer self-service or where fresh produce or prepackaged foods are sold or offered for consumption.</td>
<td>20 foot-candles</td>
<td>215 lux</td>
<td>At the surface</td>
</tr>
<tr>
<td>In server stations where food is prepared.</td>
<td>20 foot-candles</td>
<td>215 lux</td>
<td>At the surface</td>
</tr>
<tr>
<td>Areas used for handwashing or warewashing</td>
<td>20 foot-candles</td>
<td>215 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>Areas used for equipment and utensil storage</td>
<td>20 foot-candles</td>
<td>215 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>Toilet rooms</td>
<td>20 foot-candles</td>
<td>215 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>All areas and rooms during periods of cleaning</td>
<td>20 foot-candles</td>
<td>215 lux</td>
<td>30 inches above the floor</td>
</tr>
<tr>
<td>Surface where a food employee is working with food or working with utensils such as knives, slicers, grinders, or saws where employee safety is a factor</td>
<td>50 foot-candles</td>
<td>540 lux</td>
<td>At the surface</td>
</tr>
</tbody>
</table>

References:
*California Retail Food Code*. (2012). Retrieved from:
http://www.cdph.ca.gov/services/Documents/fdbRFC.pdf
INTEGRATED PEST MANAGEMENT

Pests, such as insects and rodents, can be a serious problem in a restaurant. They can contaminate food supplies as well as damage facilities. More importantly, they can also contribute to foodborne illness and other diseases. Pesticides are often used to control pests but pesticides alone are not the solution. A better solution is to have an integrated pest management program (IPM) as part of your food safety program.

IPM is an approach to pest management that minimizes reliance on chemical pesticides. The three basic rules of an IPM program are to: deny pests access to the establishment; deny pests food, water, and a hiding or nesting place; and work with a licensed pest management professional (PMP) to eliminate pests that are in the establishment.

Developing Your Program

The first step is to conduct a self-inspection of your restaurant to assess the state of your pest problems. This will help you to identify problem areas in your restaurant and correct these problems. Do so by:

- Developing a pest inspection checklist so you can conduct a thorough self-inspection. The list should include: date and time of inspection, temperature outside and inside the restaurant, pests observed (cockroaches, mice, rats, flies, other), evidence of pests (droppings, egg cases, nesting materials, gnaw marks in building structure or food packaging, grease markings) and location of evidence, deficiencies in building structure or equipment (holes, leaks, standing water, broken equipment, cracks and crevices, screens, doors and windows that are tight fitting, other), sanitation (grease, food or water accumulations and location, garbage and trash receptacles clean and covered) and corrective actions taken.
- Creating a map of your facility's interior and exterior layout so you can mark exactly where you found evidence of pests and where bait traps were placed.
- Bringing a flashlight and mirror on your inspection to help you better identify problems.
- Conducting self-inspections on a monthly basis. Routine self-inspections reduce the need for a PMP.

NOTE: Although you have conducted an in-house inspection, you may still need to hire a PMP who is trained to use pesticides in an environment, such as a restaurant.

Working with a PMP

The PMP should perform an initial inspection and submit a detailed report to you. The report should outline your current pest problems and the PMP’s recommendations for addressing the problems and recommendations of what you need to do to prevent further problems. The plan should include a schedule of service dates, pesticides to be used, and methods for treatment to eliminate pest problems.

Maintain your IPM reports in an on-site Pest Control Log book. After each pest control service, the PMP should make written recommendations and meet with you to discuss findings so you can implement needed changes. You should also use the Pest Control Log book to record all pest sightings and other problems seen between the PMP service visits. All problem areas
noted in the log book should be monitored by the PMP and your workers. Also before and after the PMP visits your restaurant, you need to:

- Prepare the area to be treated by covering all food, equipment, and tableware.
- Cover equipment and other food-contact surfaces that cannot be moved.
- Wash, rinse, and sanitize food-contact surfaces after the area has been treated.

Questions to Ask a PMP before Hiring

- How long you been in business and can you provide references?
- Do you specialize in commercial treatments? If yes, how many restaurant accounts do you have?
- What pests are covered in the service contract?
- How many service calls are included in the price?
- Are there additional charges when extra service is needed to eliminate a contracted pest?
- What areas of the restaurant are excluded from the contract?
- Do you provide a "satisfaction guaranteed" clause?
- Will you assign one technician or will you rotate my restaurant to different technicians?
- Do you include written reports that highlight sanitation, construction, or other relevant deficiencies?
- Can I accompany the technician during visits?
- At what time are service calls usually made? Or if you have a preference for when the technician arrives, ask “Can you make service calls between the hours of “x” and “y”?
- What pretreatment and post-treatment precautions and preparations should we perform at the restaurant?
- What chemicals do you use? Will they contaminate food or preparation surfaces? Are they safe for use in a restaurant?
- Can you provide Material Safety Data Sheets and the product labels for all pesticides that are used?
- How fast can the technician arrive in case of emergency?

By interviewing pest control companies before you have a problem, you can avoid hiring the wrong PMP for your establishment.

Denying Pests Access to Your Restaurant

In addition to conducting self-inspections and scheduling regular PMP visits, there are steps you and your workers need to take to reduce pest problems. Here are some areas that you need to address.

Deliveries

- Routinely inspect incoming shipments of food, supplies, and delivery areas for insects and rodents.

Doors, Windows, and Vents

- Seal cracks and crevices and keep screens closed and in good condition.
- Close all openings that surround wiring, drain pipes, vents, and flues.
- Cover windows and vents with at least a 16-mesh wire screening.
- Repair cracks and gaps at all exterior doors and walls
• Install air curtains or fly fans that blow a steady stream of air that excludes flies at delivery entrances.

Floors and Walls
• Repair damaged floors and cover floors with a waterproof material, such as tile.
• Keep floor drains free of food particles and other debris.
• Install lighting away from exterior doors because lights attract many types of flying insects.
• Caulk and seal around light switches, bulletin boards, and vent hoods.
• Keep the building exterior and perimeter clean and free of clutter and debris that can harbor mice, rats, and other pests.
• Seal all pipes and electrical lines with wire mesh (copper pads) and/or caulking.
• Store garbage in sealed plastic bags in covered containers.

Denying Pests Food and Shelter in Your Restaurant
Garbage and trash are breeding places for microorganisms and insects and can serve as food for rodents. To prevent this:
• Keep garbage and trash in easily washed containers that have tight fitting lids that prevent flies from entering them.
• Use plastic liners for garbage cans to make it easier to keep containers clean.
• Wash garbage cans daily inside and out with hot, soapy water.
• Keep areas surrounding trash cans clean as possible.
• Use insect sprays and rodent traps in and near the garbage and waste area. Only use sprays approved by the US Environmental Protection Agency (EPA) for use in food establishments.
• Throw out garbage frequently and properly.
• Store recyclables in clean, pest-proof containers as far away from your building as local regulations allow.
• Keep your dumpster and dumpster pad area cleaned.

Storage
• Store all food and supplies properly and off of the floor.
• Keep foods covered and clean up spilled foods immediately.
• Clean storage areas thoroughly.
• Eliminate sources of food and shelter in outdoor dining areas.
• Remove foods, such as flour, sugar, pancake mix, from their original containers and place in approved sealed tight containers that are properly labeled.
General
- Follow instructions on product labels when using rodent poisons and pesticides.
- Only use those products approved by the US Environmental Protection Agency and your local health department.
- Eliminate conditions that allow pests to nest.
- Use trapping devices or other means of pest control.
- Keep work and dining areas free from debris.
- Compressor motors, such as those on refrigerators and freezers, are prime areas for roaches because they have ideal temperatures for breeding.
- Do not store foods longer than their recommended time.

Pests Associated with Stored Food
These pests can include moths and beetles that feed on and contaminate stored grains. Again, the best control is prevention. These measures include inspecting all incoming items for the presence of pests, throwing away and cleaning up all spilled or contaminated items promptly, and proper ground maintenance, which is important to reducing sources of pests. Stock rotation in accordance with first-in, first-out principles apply, as old stock is more likely to become infested. Adequate ventilation is necessary in order to reduce moisture levels. While prevention is the best control measure, existing infestations are best treated by a trained and knowledgeable PMP.

Using and Storing Pesticides
- Keep pesticides in their original containers. Never store pesticides in old food containers.
- Store pesticides in locked cabinets away from areas where food is stored and prepared.
- Check with your local Cooperative Extension or state regulatory agencies about the proper method for disposing of old or excess pesticides.
- Keep a copy of the corresponding product labels and Material Safety Data Sheets in your establishment.
## Identifying Pests

<table>
<thead>
<tr>
<th>Pest</th>
<th>Unique Features</th>
<th>Prevention</th>
</tr>
</thead>
</table>
| **Mice** | - Gnawing, droppings, tracks, and nesting materials  
- Defecate wherever they travel, but mostly where they feed.  
- Mice have poor vision, and frequently use the same paths or runways close to the walls.  
- Mice eat very little, but will contaminate large amounts of food by nibbling into stored products.  
- Mice need only a crack or hole the size of a dime to enter a building | - Place traps in their territories, which rarely exceed a 20-foot diameter.  
- Do not use baits indoors except in extreme situations. |
| **Rats** | - Rats need only a crack or hole the size of a quarter to enter a building. | - Place traps and bait in their territory, which may be up to 150 feet.  
- Check traps and area daily for dead rodents.  
- Rats may be "bait shy" and more cautious than mice. Subsequently, trapping and baiting can be less effective initially compared to "rat proofing." |
| **Ants** | - Ants most often nest outdoors in landscaped areas and under pavement, but may nest in wall voids.  
- Nest size can vary from several hundred to several thousand, and control begins with finding these nesting areas. | - Liquid treatments may help deter the ants but will not necessarily stop them. Treat nests where possible.  
- Baits placed near foraging trails can be very effective.  
- Caulk and seal around pipes and electrical lines to keep ants out. |
Identifying Pests (continued)

<table>
<thead>
<tr>
<th>Pest</th>
<th>Unique Features</th>
<th>Prevention</th>
</tr>
</thead>
</table>
| Cockroaches | • Strong oily odor, fecal smears on surfaces, droppings (feces) that look like grains of black pepper, capsule-shaped egg cases that are brown, dark red, or black and may appear leathery, smooth, or shiny. | • Use a glue trap – container with sticky glue on the bottom – to identify what types of roaches are present.  
• Caulk and seal possible breeding areas.  
• Use baiting and crack and crevice treatments by a PMP.  
• Control humidity, as areas with 50% or less humidity will reduce the hatching of cockroach eggs. |

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Employment and program opportunities are offered to all people regardless of race, color, national origin, sex, age, or disability through North Carolina State University, North Carolina A & T State University, U.S. Department of Agriculture, and local governments cooperating.
Shellfish Tags

What are shellfish tags?

Commercially sold shellfish are required to have a tag with certain information on it. This is so that shellfish involved in a foodborne illness outbreak can be traced to its origin.

What is required on a shellfish tag?

Shellfish tags are required to have the following information:

1. Harvester’s or dealer’s name and address
2. Harvester’s certification number, and original shellstock shipper’s certification number
3. The date of harvesting
4. The most precise identification of the harvest location or aquaculture site possible.
5. The type and quantity of shellfish
6. The following statement, which must be in all caps, and bold: "THIS TAG IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR RETAGGED AND THEREAFTER KEPT ON FILE FOR 90 DAYS."
7. The dealer’s tag or label must also have the original shipper’s certification number, including the state or country the shellfish were harvested in.

After the shellfish is delivered, what do I do with the tag?

Shellfish tags need to be kept with original bag the shellfish came in, with the shellfish until it is all sold or served. If the shellfish is moved to another container, a copy of the tag needs to be in the container with the shellfish. Once all the shellfish has been sold or served, tags need to be kept on file in order they were received for a minimum of 90 days.

References:
### Minimum Internal Cooking Temperatures

<table>
<thead>
<tr>
<th>Food</th>
<th>Minimum Internal Cooking Temperature</th>
<th>Time Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fruits and vegetables that are cooked for hot holding</td>
<td>135° F</td>
<td>Not specified</td>
</tr>
<tr>
<td>• Grains, rice, and pasta cooked for hot holding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Raw shell eggs that are broken and prepared in response to a customer's order for immediate service</td>
<td>145° F</td>
<td>15 seconds</td>
</tr>
<tr>
<td>• Fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Single pieces of meat: beef, veal, lamb, pork, and game animals (e.g. steaks, chops)</td>
<td>145° F</td>
<td>15 seconds</td>
</tr>
<tr>
<td>• Raw eggs that aren't broken and prepared for immediate service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ostrich and emu</td>
<td>145° F</td>
<td>3 minutes</td>
</tr>
<tr>
<td>• Injected meats</td>
<td>150° F</td>
<td>1 minute</td>
</tr>
<tr>
<td>• Ground/minced meat of any kind (other than poultry)</td>
<td>158° F</td>
<td>&lt;1 second</td>
</tr>
<tr>
<td>• Poultry (including ground poultry)</td>
<td>165° F</td>
<td>15 seconds</td>
</tr>
<tr>
<td>• Stuffed fish, stuffed meat, stuffed poultry, stuffed ostrich, stuffed emu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Stuffing containing fish, meat, poultry, ostrich, or emu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pasta and any other food stuff with fish, meat, poultry, ostrich, or emu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Roasts: beef, corned beef, pork, cured pork*</td>
<td>130° F</td>
<td>112 minutes</td>
</tr>
</tbody>
</table>

*At higher temperatures, roasts can be cooked for a shorter time. See section 114004 of the California Retail Food Code for more information.

References:

*California Retail Food Code*. (2012). Retrieved from:
http://www.cdphe.ca.gov/services/Documents/fdbRFC.pdf
Introduction

The process approach simplifies developing a food safety program by placing menu items into three broad preparation processes based on the number of times the food passes through the temperature danger zone. These processes are no cook, same day service, and complex. Foodservice employees must monitor foods at various steps in the flow of food through the foodservice operation for each process and must control temperatures to ensure food safety.

Here Are the Facts

Menu items in the complex process go through the temperature danger zone, during cooking, cooling, and when foods are reheated. Examples of these items will vary in different schools but may include turkey roasts, taco meat or chili, and leftovers. It is important to note that the same menu items may be grouped into different processes depending on how the item is prepared and the available equipment. For example, chili could be a complex item in one foodservice operation and a same day service process item in another operation.

The complex food preparation process include foods that require time and temperature control and have been cooled. The complex menu item flow chart shows points at which temperature control is very important and points at which monitoring and recordkeeping are needed.
Application
Follow standard operating procedures to control hazards for complex menu items.
• Purchase foods from approved sources.
• Receive foods properly.
• Store foods properly, including separating food from chemicals.
• Use good personal hygiene.
• Follow proper handwashing practices.
• Prevent cross contamination.
• Limit time food is held in the temperature danger zone.
• Use sanitized, calibrated thermometer to take food temperatures.
• Verify food temperatures during cooking, cooling, reheating, and hot holding.
• Serve food so that there is no bare hand contact. Use appropriate utensils, deli paper, or single-use gloves.
• Restrict ill employees from working with food.

Monitor and record time and temperatures of complex menu items throughout the flow of food.
• Check and record food temperature when food is received.
• Check and record time and temperature of food in storage.
• Check and record time and end-point cooking temperatures.
• Check and record time and temperature of food during cooling.
• Check and record time and temperature of food during reheating.
• Check and record time and temperature of food during hot holding.

Control time and temperature of complex menu items during cooking, cooling, reheating, and hot holding.
• Cook same day service menu items to the appropriate end-point cooking temperatures. For example, chicken should be cooked to 165 °F for 15 seconds and hamburger patties should be cooked to 155 °F for 15 seconds.
• Cool food properly.
  ▶ Cool food from 135 °F–70 °F in 2 hours.
  ▶ Cool food from 70 °F–41 °F in an additional 4 hours.
  ▶ Use immediate and appropriate corrective actions when cooling guidelines are not met.
Control time and temperature of complex menu items during cooking, cooling, reheating, and hot holding, continued

- Reheat food to 165 °F for 15 seconds within 2 hours.
- Hold complex menu items at 135 °F or above.
- Limit the time that complex menu items are in the temperature danger zone.

Take corrective action to make sure that cleaning and sanitizing is done properly.

- Wash, rinse, and sanitize dirty food contact surfaces.
- Sanitize food contact surfaces if it cannot be determined if they have been sanitized properly.
- Discard food that comes in contact with food contact surfaces that have not been sanitized properly.

Remember, follow state or local health department requirements.

References


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For more information, contact NFSMI at 800-321-3054 or www.nfsmi.org.
Food Safety Resources

Websites:

California Healthy Kids Resource Center Food Safe School Framework
http://www.californiahealthykids.org/food_safe

California Retail Food Code (CalCode)
http://www.cdph.ca.gov/programs/pages/fdbRetailFoodProgram.aspx

FDA Bad Bug Book
http://www.fda.gov/Food/FoodborneIllnessContaminants/ CausesOfIllnessBadBugBook

FDA Employee Health and Personal Hygiene Handbook
http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm113827.htm

FDA Food Code
http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/default.htm

FDA, USDHHS, CFSAN: Managing Food Safety: A Manual for the Voluntary Use of HACCP Principles for Operators of Food Service and Retail.
http://www.fda.gov/Food/GuidanceRegulation/HACCP/ucm2006811.htm

Fight Bac!
http://www.fightbac.org

Food Allergy Research and Education
http://www.foodallergy.org/

FoodSafety.gov
http://www.FoodSafety.gov

Iowa State Extension Food Safety
http://www.extension.iastate.edu/foodsafety/

Kansas State University Center of Excellence Food Safety Research in Child Nutrition Programs
http://cnsafefood.k-state.edu/

National Coalition for Food Safe Schools
http://www.foodsafeschools.org/

National Food Service Management Institute
http://www.nfsmi.org
National Education Association Health Information Network: The Food Allergy Book
What School Employees Need to Know.
http://www.neahin.org/educator-resources/foodallergybook.html

School Nutrition Association: Food Allergy Resource Center
http://www.schoolnutrition.org/Content.aspx?id=17241

School Nutrition Association: Sanitation and Food Safety
http://www.schoolnutrition.org/Content.aspx?id=90

USDA Food and Nutrition Service Food Safety Resources

USDA National Agricultural Library Allergies and Food Sensitivities

USDA National Agricultural Library Food Safety Research Information Office
http://fsrio.nal.usda.gov/

Books:


This Management Bulletin (MB) notifies School Nutrition Program sponsors of new U.S. Department of Agriculture requirements for all food safety programs (FSPs) operated in a school.

This requirement pertains to participants of the National School Lunch Program, School Breakfast Program, Special Milk Program, the Fresh Fruit and Vegetable Program, and the Afterschool Care Programs.

Background

On December 13, 2010, President Obama signed the Healthy, Hunger-Free Kids Act of 2010 (Act), reauthorizing the Child Nutrition Programs. Section 205 of the Act amended section 9(h)(5) of the Richard B. Russell National School Lunch Act, by modifying requirements for school FSPs. It requires that school FSPs apply the Hazard Analysis and Critical Control Points (HACCP) principles not only to the cafeteria but also to any facility where food is stored, prepared, or served.

Requirements

Standard operating procedures in school FSPs must be updated to include any facility or part of a facility where food is stored, prepared, or served. The HACCP principles for food served in the cafeteria apply to all other facilities and can include, but are not limited to the following:

- School buses
- Hallways on school campuses
- School courtyards
- Kiosks
- Classrooms

Implementation

These requirements have been effective since July 1, 2011.

If you have any questions regarding this MB, please contact Stephanie Enright, Child Nutrition Consultant in the School Nutrition Programs Unit, by phone at 916-323-0122 or by e-mail at senright@cde.ca.gov.
New Policy Change for Food Safety Inspections

This Management Bulletin (MB) notifies School Nutrition Program sponsors of a policy change pertaining to the mandatory school food safety inspection requirements; specifically, documentation requirements demonstrating attempt to schedule food safety inspections by School Food Authorities (SFA) that fail to obtain the required two inspections per year.

Background

Title 7, Code of Federal Regulations, sections 210.13 and 220.7 that govern the National School Lunch Program (NSLP) and School Breakfast Program (SBP), respectively; require that all participating school sites obtain two annual food safety inspections from the state or local governmental agency responsible for food safety inspections.

Policy Change

For those SFAs that fail to obtain the two mandatory food safety inspections, the California Department of Education (CDE) requests that they submit a copy of the response from their local environmental health department, stating why the health department could not conduct the inspections. If the SFA did not receive a response, the CDE will request a copy of the letter sent to the local environmental health department requesting the inspections. In November 2013, the CDE will notify all SFAs that did not meet the federal requirement, and provide details for how they can submit their documentation to the CDE.

Please note, all SFAs that receive the two mandatory food safety inspections every school year will not need to submit documentation to the CDE.

It is important that all SFAs submit a letter in writing to their local environmental health department requesting the inspections for every school site, and keep a copy of this letter on file. If the local environmental health department is unable to conduct the inspections, the SFA should request a response in writing from the local environmental health department, and keep the response on file.

For those SFAs that have not received both of their food safety inspections for the 2012–13 school year, they should immediately contact their local environmental health department to schedule their inspection(s) prior to the end of this school year.

The CDE recommends that SFAs contact their local environmental health department early in the school year to allow inspectors time to annually conduct the mandated two food safety inspections. Please note that it is the responsibility of the SFA to request the two food safety inspections from their local environmental health department and to document their request.

If you have any questions related to this MB, please contact Stephanie Enright, Child Nutrition Consultant, Northern School Nutrition Programs Unit, by phone at 916-323-0122 or by e-mail at senright@cde.ca.gov.
Fruits and vegetables are an important part of a healthy diet. Introducing children to them in schools will improve their present and future health. Fresh produce must be handled safely to reduce the risks of foodborne illness. There are a number of steps that foodservice employees can take to minimize the chances for fruits and vegetables they handle to become contaminated. Best practices for handling all types of produce are described in this fact sheet, along with practices specific to leafy greens, tomatoes, melons, and sprouts.

Contamination of produce with harmful microorganisms can occur at all stages of production, processing, transportation, storage, preparation, and service. To prevent foodborne illness, fresh produce needs to be handled with care at each step from farm to table.
Recommendations For Handling Fresh Produce

**PURCHASING AND RECEIVING**

- Use purchasing specifications that include food safety requirements, such as maintaining produce at the proper temperature, maintaining clean and pest-free storage areas and delivery vehicles, and complying with federal and state food safety laws and regulations.

- Ensure suppliers are getting produce from licensed, reputable sources.

- Check storage and handling practices of vendors.

- Establish procedures for inspecting and accepting or rejecting incoming deliveries. Procedures should include checking the condition of the fresh produce and the transportation vehicles to make sure specifications are met.

**WASHING AND PREPARATION**

- Inspect produce for obvious signs of soil or damage prior to cutting, slicing, or dicing. When in doubt about damaged produce, either cut away the affected areas or do not use the item.

- Wash produce before serving or cutting using either:
  - Continuous running water.
  - Chemical disinfectants, used according to the manufacturer’s label instructions for recommended concentration and contact time. *Note: Do not soak produce or store in standing water.*

- Do not rewash packaged produce labeled “ready-to-eat,” “washed,” or “triple washed.”

- Wash thoroughly with hot soapy water all equipment, utensils, and food contact surfaces that come into contact with cut produce. Rinse, sanitize, and air-dry before use.

**HAND HYGIENE**

- Wash hands thoroughly with soap and water before handling or cutting fresh produce. Rewash hands after breaks, visiting restrooms, sneezing, coughing, handling trash or money, or anytime hands become soiled or otherwise contaminated.

- Use a barrier such as gloves, deli paper, or an appropriate utensil to touch ready-to-eat produce. *Note: This does not eliminate the need for frequent proper handwashing.*

- Always wash hands before putting on disposable gloves.

- Change disposable gloves anytime the gloves may have been contaminated or when changing tasks.

- Do not wash or reuse disposable gloves.

- Change disposable gloves if they are torn or damaged.
SERVING

- Do not store produce in direct contact with ice or water while on display on serving lines and salad bars.
- Mark the time when cut produce is displayed without refrigeration. Display cut produce for a maximum of 4 hours if not in a refrigeration unit or containers surrounded by ice. Discard any uneaten produce at the end of 4 hours.
- Create safe salad bars and self-service lines by taking the following actions:
  - Protect food with sneeze guards or food shields in a direct line between the food and the mouth or nose, usually 14 to 18 inches above the food.
  - Use cleaned and sanitized long-handled tongs, spoons, and ladles so bare hands do not touch food and the utensils do not drop into the serving pans.
  - Change utensils periodically.
  - Set up the salad bar or self-service line as close to mealtime as possible to reduce the time that produce sits out.
  - Keep cold foods at or below 41°F in a refrigeration unit or surrounded by ice.
  - Monitor and document the internal temperature of self-service items every 30 minutes as with other foods on the service lines.
  - Clean up spills promptly. Wiping clothes should be stored in sanitizing solution and laundered daily.
  - Teach children salad bar etiquette. Assign an adult to monitor the salad bar and self-service line to make sure the customers—especially children—are not touching food with their hands, tasting food while in line, putting their heads under the sneeze guard, or returning food items.
  - Clearly label all salad dressings and other containers to discourage tasting.
  - Never add freshly prepared food to food already on salad bars and self-service lines.

STORAGE

- Maintain produce at the temperature recommended for the variety and particular stage of ripeness.
- Store produce at least 6 inches off the floor, including in walk-in refrigerators.
- Store produce in a covered container and above other items that might cause contamination.
- Follow manufacturer’s instructions for the product such as “keep refrigerated” or “best if used by.”
- Establish a policy for produce that is cut in-house to specify how long the refrigerated cut product may be used. Mark the product with “prepared on” or “use by” date.
- Wash produce just before preparation, not before storage.

TRAINING AND GENERAL FOOD SAFETY PRACTICES

- Develop training programs to teach the importance of food safety and proper handling of produce to all food handlers.
- Practice good food safety and food handling techniques to prevent cross-contamination.
Recommendations For Specific Types Of Produce

**MELONS**
- Avoid using whole melons that have visible signs of decay or damaged rinds (such as mechanical damage or cracking) due to the increased risk that harmful bacteria may have contaminated the melons.
- Wash the outer surface of the melon thoroughly under running cool tap water to remove surface dirt. Scrub melons with a clean produce brush before cutting. Cut away any bruised or damaged areas before serving.
- Discard cut melons after 4 hours if maintained at 41°F or above. If possible, display cut melons in a refrigerated case, not just on top of ice.
- Display cut melons for a maximum of 4 hours without being kept cool with refrigeration or ice and discard uneaten melons at the end of 4 hours.
- Mark the date on refrigerated cut melons to indicate that they must be consumed or discarded within 7 days.

**TOMATOES**
- Do not wash tomatoes in cold water. Use wash water temperatures that are at least 10°F warmer than the internal tomato temperature to prevent exterior bacteria from entering the interior of the tomato during washing.
- Ensure whole tomatoes are free from obvious signs of soil and skin damage, such as punctures, prior to cutting, slicing, or dicing. Either cut away any bruised or damaged areas, or do not use the tomato.
- Hold tomatoes at 41°F or below after cutting, including during display on serving lines and salad bars.
- Ensure the temperature of tomatoes purchased as fresh-cut (i.e., sliced, diced, or chopped) is 41°F or lower upon delivery and the tomatoes were kept cool continuously during transport. Reject fresh-cut tomatoes delivered at a temperature higher than 41°F.
- Mark the date on refrigerated cut tomatoes to indicate that they must be consumed or discarded within 7 days.
- Do not store cut tomatoes in direct contact with ice or water.

**LEAFY GREENS**
- Do not use leafy greens with visible signs of decay or damage because there is an increased risk of the presence of harmful bacteria. When in doubt about the use of decayed or damaged product, either remove the unusable portions or do not use the leafy greens.
- Do not rewash packaged produce labeled “ready-to-eat,” “washed,” or “triple washed.”

**SPROUTS**
Due to the increasing number of illnesses associated with eating raw sprouts, the Food and Drug Administration has advised all consumers—especially children, pregnant women, the elderly, and persons with weakened immune systems—to not eat raw sprouts as a way to reduce the risk of foodborne illness. All sprouts should be cooked thoroughly before eating to reduce the risk of illness.

**Resources**
Council for Agricultural Science and Technology. *Food Safety and Fresh Produce: An Update.*
Available at http://www.cast-science.org/publications.asp

Available at http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/FruitsVegetablesJuices/FDAProduceSafetyActivities/ucm174086.htm

Food and Drug Administration. *Safe Handling of Raw Produce and Fresh-Squeezed Fruit and Vegetable Juices.*
Available at http://www.cfsan.fda.gov/~dms/prodsafe.html

Available at http://www.restaurant.org/foodsafety/how_to_salad.cfm

U.S. Department of Agriculture. *Fresh Fruit and Vegetable Program Handbook.*
Available at http://www.fns.usda.gov/cnd/FFVP/Resources/FFVPHandbookFInAL.pdf

Available at http://www.fns.usda.gov/TN/Resources/fv_galore.html

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Information about this and other topics may be obtained by contacting the NATIONAL FOOD SERVICE MANAGEMENT INSTITUTE, The University of Mississippi; Telephone: 800.321.3054; Item number ET100-10

USDA
NFSMI
Handling Fresh Produce on Salad Bars*

Follow these recommendations to reduce the risk of foodborne illness from salad bars or self-service lines. Follow your school district’s food safety plan for appropriate actions when temperature standards are not met.

Preparation and Set Up
• Use equipment with food shields or sneeze guards. In elementary schools, equipment with a solid barrier between the students and the food is recommended.**
• Consider offering pre-packaged or pre-portioned items for students in all grades. In elementary schools, pre-packaged or pre-portioned items are recommended for all self-service items.**
• Place a clean and sanitized utensil in each container on the salad bar. Replace utensils at the beginning of each meal period.
• Label containers to identify foods and condiments.
• Use dispensers or single-use packages for salad dressings and other condiments.
• Set up the salad bar just prior to serving time.
• Select container size so that food is used within one meal period.
• Provide individually wrapped eating utensils, or keep unwrapped utensils in containers with the handles up.

Temperature Control
• Verify that the temperature of equipment is at 41 °F or below before use.
• Check to be sure the bottom of the pan comes into contact with the ice or ice pack, when using them for temperature control.
• Chill foods to an internal temperature of 41 °F or below before placing on the salad bar.
• Check and record internal temperatures of each food item with a clean, sanitized, and calibrated thermometer before placing it on the salad bar. Check at least every two hours to verify that it remains at or below 41 °F.

Supervision
• Consider using a serving line with a solid food shield in elementary schools, allowing students to select items for assisted service rather than self-service. Employees place selected items on a plate or tray, then pass it over the food shield to students.**
Handling Fresh Produce on Salad Bars, continued

• Monitor self-service salad bar in middle and high schools to ensure that students do not:
  ◆ Touch food with bare hands.
  ◆ Touch food with clothing or jewelry.
  ◆ Cough, spit, or sneeze on food.
  ◆ Use utensils in multiple containers.
  ◆ Place foreign objects in food.
  ◆ Place dropped food or utensils back into containers.
  ◆ Use the same plate or tray on subsequent trips.
• Assist students with utensils, if needed.
• Avoid adding or layering freshly prepared food on top of food already on salad bars and self-service lines. Check with your state or local health department for regulations on replenishing food.
• Use a clean cloth or towel dipped in sanitizing solution to wipe surfaces during and between meal periods. Store sanitizing solution away from salad bar.

Clean Up
• Remove food immediately after the last meal period.
• Cover, label, date, and refrigerate food remaining at the end of service if it will be served the following day.
• Discard food that may have been contaminated, either unintentionally or intentionally.
• Use chemical sprays only after all food has been removed.

*These best practices are based on the 2009 FDA Food Code. Follow the food code for your local or state jurisdiction. Consult with your local health department if you have any questions. www.fda.gov/Food/FoodSafety/RetailFoodProtection/FoodCode/FoodCode2009/default.htm


These best practices are consistent with NFSMI’s Standard Operating Procedures for Holding Hot and Cold Potentially Hazardous Foods and Preventing Contamination at Food Bars.
http://nfsmi.org/documentlibraryfiles/PDF/20080213010741.pdf
http://nfsmi.org/documentlibraryfiles/PDF/20080213011044.pdf
Controlling Time and Temperature During Preparation

Introduction

Preparation is an important step in the flow of food. Foodservice employees can use good food handling practices during preparation to ensure that food temperatures are controlled and the time that foods are in the temperature danger zone is minimized.

Here Are the Facts

The temperature danger zone, between 41 °F and 135 °F, is the temperature range in which bacteria grow most rapidly.

Application

Limit the time that foods are in the temperature danger zone during preparation.

- Pre-chill ingredients for cold foods, such as sandwiches, salads, and cut fruits, to 41 °F or below before combining with other ingredients.
- Prepare foods as close to serving times as the menu will allow.
- Prepare food in small batches. For example, when assembling deli sandwiches, remove only enough meat and cheese to prepare 25 sandwiches. Return the sandwiches to the refrigerator and then remove enough meat and cheese to prepare another 25 sandwiches.
- Limit the time for preparation of any batches of food so that the ingredients are not at room temperature for more than 30 minutes before cooking, serving, or returning to the refrigerator.
- Chill all cold foods as quickly as possible.
Monitor the time and temperatures of foods during preparation.
- Use a clean, sanitized, and calibrated thermometer (preferably a thermocouple) to check temperatures.
- Take at least two internal temperatures from each pan of food at various stages of preparation.
- Monitor the amount of time that food is in the temperature danger zone. It should not exceed 4 hours.

Take corrective action to make sure that time and temperature are maintained during preparation.
- Begin the cooking process immediately after preparation for any foods that will be served hot.
- Cool rapidly any ready-to-eat foods or foods that will be cooked at a later time.
- Return ingredients to the refrigerator if the anticipated preparation time is expected to exceed 30 minutes.
- Discard food held in the temperature danger zone for more than 4 hours.

Remember, follow state or local health department requirements.

References

Accommodating Children with Special Dietary Needs

Nutrition Services Division Management Bulletin

Purpose: Policy, Beneficial Information

To: Child Nutrition Program Sponsors

Number: CNP-07-2014

Attention: Food Programs/Service Directors

Date: June 2014

Reference: FNS Instruction 783-2, Meal Substitutions for Medical or Other Special Dietary Reasons; Title 7, Code of Federal Regulations, sections 15.3(b) and 210.10(g); U.S. Department of Agriculture Policy Memorandum SP 36-2013, CACFP 10-2013, SFSP 12-2013: Guidance Related to the Americans With Disabilities Act Amendments Act

Supersedes: Management Bulletin USDA-CNP-03-2013

Subject: Guidelines for Accommodating Children with Special Dietary Needs in Child Nutrition Programs

This Management Bulletin (MB) provides clarification to Child Nutrition Program (CNP) sponsors regarding further direction on the process, requirements, options, and resources for accommodating children, with and without disabilities, who have special dietary needs. Federal legislation and regulations are in place to ensure that children with disabilities have the same opportunities as other children. This includes education and education-related benefits, such as school meals.

This MB contains updated information regarding the Americans with Disabilities Act Amendments Act of 2008 (ADAAA) and the appropriate use of the Individualized Education Plan (IEP). It is recommended that this MB be read in its entirety.

This MB applies to agencies and sponsors of School Nutrition Programs (SNP), the Child and Adult Care Food Program (CACFP), and the Summer Food Service Program (SFSP). For the purpose of this MB, these entities will be collectively referred to as Agencies.

Background Legislation and Regulation

The Rehabilitation Act of 1973, the Education of the Handicapped Act of 1975, and the Americans with Disabilities Act of 1990 state that persons with disabilities have the support of these laws that prohibit discrimination and require that children be provided with a free and appropriate public education.

U.S. Department of Agriculture (USDA) regulations under Title 7, Code of Federal Regulations (7 CFR), sections 15.3(b) and 210.10(g), require substitutions or modifications in the National School Lunch Program and School Breakfast Program for children whose disabilities restrict their diets.

Accommodating Children With a Disability

An individual with a disability is defined as any person who has a physical or mental impairment that substantially limits one or more major life activities or is regarded as having such an impairment. Major life activities include caring for one’s self, eating, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.

The ADAAA has amended the definition of the term “disability,” broadening it to cover additional individuals. The list of major life activities has also been expanded to add a new category called major bodily functions. These include: functions of the immune system, normal cell growth, along with digestive, bowel, bladder, neurological, brain, respiratory, circulatory, cardiovascular, endocrine, and reproductive functions.

The Agency must provide food substitutions to a child with a disability when the need for a substitution is supported by a written medical statement or completed Medical Statement form that is signed by a licensed physician.

Either medical statement must clearly identify the child’s:
Disability
Major life activity or bodily function affected by the disability
Diet prescription
Food or foods to be omitted from his or her diet
Food or choice of foods that must be substituted in his or her meals

The Agency is required to make dietary accommodations, including texture modifications (such as preparing chopped, ground, or pureed foods), when a physician provides a medical statement to the Agency for children whose disability restricts their diet.

Accommodating Children Without a Disability

As defined in 7 CFR Section 15(b), an individual who does not have a disability, but is unable to consume a particular food because of a medical or other special dietary condition, is considered to have a special dietary need.

Agencies have the option of making dietary accommodations for children who do not have a disability but are medically certified as having a medical or dietary need. It is important to note that the Agency can make accommodations for children with special dietary needs on a case-by-case basis. However, the Agency must ensure that the accommodation is supported by a written medical statement or completed Medical Statement form signed by a recognized medical authority; a licensed physician, a physician’s assistant, or a nurse practitioner.

The medical statement must clearly identify the child’s:

- Medical or other special dietary condition
- Diet accommodation requested
- Food or foods to be omitted from his or her diet
- Food or choice of foods that must be substituted in his or her meals

Written Medical Statement to Request Special Meals and/or Accommodations

The USDA requires that a written medical statement be completed to ensure that a child’s modified meal is reimbursable and that any meal modifications meet nutrition standards that are medically appropriate. The California Department of Education (CDE) developed a Medical Statement to Request Special Meals and/or Accommodations form to identify the information required to implement a sound nutrition plan for children with dietary restrictions. The Medical Statement form is available on the CDE SNP Forms Web page at http://www.cde.ca.gov/ls/nu/sn/fm.asp, the CDE CACFP Forms Web page at http://www.cde.ca.gov/ls/nu/cc/fm.asp, and the CDE SFSP Forms Web page at http://www.cde.ca.gov/ls/nu/sf/fm.asp.

A written medical statement or Medical Statement form must be signed by the appropriate recognized medical authority. It is important that Agencies reiterate to the child’s family that the written medical statement needs to contain the most current diet order from the child’s recognized medical authority. This will protect the Agency from liability and minimize misunderstandings with households.

Under no circumstance is an Agency to revise or change a recognized medical authority’s diet prescription or medical order.

Individualized Education Plan to Request Special Meals and/or Accommodations

An IEP is a plan or program developed in accordance with the Individuals with Disabilities Education Act to ensure that a child who has a disability receives specialized instruction and related services.

When specialized nutrition services are required, a written medical statement or completed Medical Statement form that is signed by a licensed physician must support the child’s IEP. An IEP does not supersede the licensed physician’s written medical statement. It supports the written medical statement to reiterate the child’s nutritional needs.

Definition of a Recognized Medical Authority

For a child with a medical condition that has been determined to be a disability, the CDE will continue to comply with the USDA guidelines already in place that define a recognized medical authority as a licensed physician.
The CDE has revised the definition of recognized medical authority when diagnosing a child, who does not have any disabilities, with a special dietary need.

The California Department of Consumer Affairs, Board of Registered Nursing, has determined that it is not in the scope of practice for a Registered Nurse (RN) to establish a medical diagnosis and/or prescribe dietary orders. The CDE’s Nutrition Services Division will abide with USDA guidelines already in place that define a recognized medical authority as a licensed physician, physician assistant, or nurse practitioner for children who are not disabled but have a special dietary need. No other medical authorities are authorized to sign a medical statement to determine a child’s meal order. This guideline assures the safety and well-being of all parties involved.

Agencies that currently have written medical statements on file that are signed by an RN will not need to update those statements. However, from the date this MB is issued, a recognized medical authority as defined above is required to sign all medical statements.

The New Meal Patterns and Children with Special Dietary Needs

Meals for children with recognized medical disabilities that restrict their diet are not affected by the new 2012 Food-Based Menu Plan (meal pattern) or dietary specifications. Meals will continue to be based on a written medical statement or completed Medical Statement form that is signed by a licensed physician. Optional accommodations for children with special dietary needs must be consistent with the new meal pattern and dietary specifications.

Food Allergies

Generally, children with food allergies or intolerances do not have a disability as defined under Section 504 of the Rehabilitation Act and the Individuals with Disabilities Education Act, Part B. The Agency may, but is not required to, make food accommodations for these children.

When food allergies result in a severe, life-threatening reaction, a child’s condition would rise to the level of a disability. The Agency is required to accommodate the prescribed diet ordered by a licensed physician.

Funding Sources

In most cases, children with disabilities are accommodated with little extra expense or involvement. Agencies may not charge children with disabilities or certified special dietary needs who require food substitutions or accommodations more than they charge other children for program meals or snacks.

An Agency’s General Fund and other funding sources may be used to cover the additional costs. For more information on additional funding sources, please refer to pages 11–14 in the USDA Accommodating Children with Special Dietary Needs in the School Nutrition Programs guidance manual. The manual is available to download from the USDA School Meal Guidance and Resources Web page at http://www.fns.usda.gov/school-meals/guidance-and-resources.

Contact Information

If you have any questions regarding this MB, please contact Lori Porter, Child Nutrition Consultant (CNC), Southern SNP Unit, by e-mail at lporter@cde.ca.gov or by phone at 916-322-1454, or Stephanie Enright, CNC, Northern SNP Unit, by e-mail at senright@cde.ca.gov or by phone at 916-323-0122.
DATE: April 26, 2013

MEMO CODE: SP 36-2013, CACFP 10-2013, SFSP 12-2013

SUBJECT: Guidance Related to the ADA Amendments Act

TO: Regional Directors
Special Nutrition Programs
All Regions

State Directors
Child Nutrition Programs
All States

The purpose of this memorandum is to provide schools, institutions, facilities, sites, and sponsors participating in the Child Nutrition Programs (CNP) with additional clarifications on making dietary accommodations for children with disabilities as required under Section 9(a) of the Richard B. Russell National School Lunch Act, 42 USC 1758(a), CNP regulations and in accordance with the Americans with Disabilities Act Amendments Act of 2008 (ADAAA), P.L. 110-325. The ADAAA, as explained in further detail in the next paragraph below, amended the Federal definition of disability, broadening it to cover additional individuals. Because of this broader definition, it is reasonable that CNP operators may see more children identified by their licensed physician as having a food-related disability than were identified previously. Program operators should note, however, that the process for identifying children with disabilities requiring an accommodation has not changed. The CNPs continue to require that participants seeking an accommodation for a disability that is food-related must provide a statement from a licensed physician (as defined by the State) identifying the food-related disability and indicating the required meal accommodation.

The ADAAA broadened the list of “Major Life Activities” for purposes of identifying individuals with disabilities and added a new category called “Major Bodily Functions”, 42 USC 12102(2)(B). This law continues to include as “Major Life Activities”: “caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating and working.” As amended by the ADAAA, Major Life Activities now also includes “Major Bodily Functions” such as: “functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, cardiovascular, endocrine, and reproductive functions.” It is important to point out that individuals who take mitigating measures to improve or control any of the conditions recognized as a disability, are still considered to have a disability and require an accommodation.
The Food and Nutrition Service is working to update the guidance, *Accommodating Children with Special Dietary Needs in the School Nutrition Programs, Guidance for School Food Service Staff* (http://www.fns.usda.gov/cnd/guidance/special_dietary_needs.pdf), to reflect the broadened definition of disabilities. Institutions participating in the CACFP and SFSP should also refer to this resource until more specific guidance is made available. State agencies are reminded to distribute this information to Program operators immediately. Program operators should direct any questions regarding this memorandum to the appropriate State agency. State agency contact information is available at http://www.fns.usda.gov/cnd/Contacts/StateDirectory.htm. State agencies should direct questions to the appropriate FNS Regional Office.

Melissa Rothstein  
Acting Director  
Child Nutrition Division
MEDICAL STATEMENT TO REQUEST
SPECIAL MEALS AND/OR ACCOMMODATIONS

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<th>1. School/Agency Name</th>
<th>2. Site Name</th>
<th>3. Site Telephone Number</th>
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<th>4. Name of Participant</th>
<th>5. Age or Date of Birth</th>
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<th>6. Name of Parent or Guardian</th>
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8. Check One:
- [ ] Participant has a disability or a medical condition and requires a special meal or accommodation. (Refer to definitions on reverse side of this form.) Schools and agencies participating in federal nutrition programs must comply with requests for special meals and any adaptive equipment. **A licensed physician must sign this form.**

- [ ] Participant does not have a disability, but is requesting a special meal or accommodation due to food intolerance(s) or other medical reasons. Food preferences are not an appropriate use of this form. Schools and agencies participating in federal nutrition programs are encouraged to accommodate reasonable requests. **A licensed physician, physician’s assistant, or nurse practitioner must sign this form.**

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<th>9. Disability or medical condition requiring a special meal or accommodation:</th>
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<th>10. If participant has a disability, provide a brief description of participant's major life activity affected by the disability:</th>
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<th>11. Diet prescription and/or accommodation: (please describe in detail to ensure proper implementation—use extra pages as needed)</th>
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<th>12. Indicate texture:</th>
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<th>13. Foods to be omitted and substitutions: (please list specific foods to be omitted and suggested substitutions. you may attach a sheet with additional information as needed)</th>
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<td>A. Foods To Be Omitted</td>
<td>B. Suggested Substitutions</td>
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<th>14. Adaptive Equipment:</th>
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<th>15. Signature of Preparer*</th>
<th>16. Printed Name</th>
<th>17. Telephone Number</th>
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<th>19. Signature of Medical Authority*</th>
<th>20. Printed Name</th>
<th>21. Telephone Number</th>
<th>22. Date</th>
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* Physician’s signature is required for participants with a disability. For participants without a disability, a licensed physician, physician’s assistant, or nurse practitioner must sign the form.

The information on this form should be updated to reflect the current medical and/or nutritional needs of the participant.

In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. To file a complaint of discrimination, write USDA, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (866) 632-9992 (Voice). Individuals who are hearing impaired or have speech disabilities may contact USDA through the Federal Relay Service at (800) 877-8339, or (800) 845-6136 (Spanish). USDA is an equal opportunity provider and employer.
MEDICAL STATEMENT TO REQUEST
SPECIAL MEALS AND/OR ACCOMMODATIONS

INSTRUCTIONS

1. **School/Agency:** Print the name of the school or agency that is providing the form to the parent.
2. **Site:** Print the name of the site where meals will be served (e.g., school site, child care center, community center, etc.)
3. **Site Telephone Number:** Print the telephone number of site where meal will be served. See #2.
4. **Name of Participant:** Print the name of the child or adult participant to whom the information pertains.
5. **Age of Participant:** Print the age of the participant. For infants, please use Date of Birth.
6. **Name of Parent or Guardian:** Print the name of the person requesting the participant’s medical statement.
7. **Telephone Number:** Print the telephone number of parent or guardian.
8. **Check One:** Check (✓) a box to indicate whether participant has a disability or does not have a disability.
9. **Disability or Medical Condition Requiring a Special Meal or Accommodation:** Describe the medical condition that requires a special meal or accommodation (e.g., juvenile diabetes, allergy to peanuts, etc.)
10. **If Participant has a Disability, Provide a Brief Description of Participant's Major Life Activity Affected by the Disability:** Describe how physical or medical condition affects disability. For example: "Allergy to peanuts causes a life-threatening reaction."
11. **Diet Prescription and/or Accommodation:** Describe a specific diet or accommodation that has been prescribed by a physician, or describe diet modification requested for a non-disabling condition. For example: "All foods must be either in liquid or pureed form. Participant cannot consume any solid foods."
12. **Indicate Texture:** Check (✓) a box to indicate the type of texture of food that is required. If the participant does not need any modification, check "Regular."
13. **A. Foods to Be Omitted:** List specific foods that must be omitted. For example, "exclude fluid milk."
    **B. Suggested Substitutions:** List specific foods to include in the diet. For example, "calcium fortified juice."
14. **Adaptive Equipment:** Describe specific equipment required to assist the participant with dining. (Examples may include a sippy cup, a large handled spoon, wheel-chair accessible furniture, etc.)
15. **Signature of Preparer:** Signature of person completing form.
16. **Printed Name:** Print name of person completing form.
17. **Telephone Number:** Telephone number of person completing form.
18. **Date:** Date preparer signed form.
19. **Signature of Medical Authority:** Signature of medical authority requesting the special meal or accommodation.
20. **Printed Name:** Print name of medical authority.
21. **Telephone Number:** Telephone number of medical authority.
22. **Date:** Date medical authority signed form.

DEFINITIONS:

“A Person with a Disability” is defined as any person who has a physical or mental impairment which substantially limits one or more major life activities, has a record of such impairment, or is regarded as having such an impairment.

“Physical or mental impairment” means (a) any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive, digestive, genito-urinary; hemic and lymphatic; skin; and endocrine; or (b) any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities.

“Major life activities” include, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working.

“Has a record of such an impairment” is defined as having a history of, or have been classified (or misclassified) as having a mental or physical impairment that substantially limits one or more major life activities.

(*Citations from Section 504 of the Rehabilitation Act of 1973 and Americans with Disabilities Act of 1990*)
Serving Safe Food to Students with Food Allergies

PURPOSE: To serve safe and nutritious meals to students with food allergies.

SCOPE: This procedure applies to child nutrition employees involved in preparing and serving food to students with food allergies.

KEY WORDS: Allergies, Cleaning, Cross-contact, Hand washing.

INSTRUCTIONS:
1. Follow policies and procedures of your child nutrition operation and school district.
2. Use your receiving procedures.
   - Check all ingredient labels each time a food is purchased.
   - Date each food item when received.
3. Store food items that contain allergens in a separate location from the non-allergenic items.
4. Keep ingredient labels for a minimum of 24 hours after serving the product.
5. Prevent cross-contact during food preparation.
   - Wash hands before preparing foods.
   - Wear single-use gloves.
   - Use a clean apron when preparing allergen-free food.
   - Wash, rinse, and sanitize all cookware before and after each use.
   - Wash, rinse, and sanitize food contact surfaces.
   - Designate an allergy-free zone in the kitchen. When working with multiple food allergies, set up procedures to prevent cross-contact within the allergy-free zone.
   - Prepare food items that do not contain allergens first. Label and store the allergen-free items separately.
   - Use a clean, sanitized cutting board when preparing food.
   - Use clean potholders and oven mitts for allergen-free foods to prevent cross-contact.
6. Prevent cross-contact during meal service.
   - Set aside food for students with food allergies from self-service food areas, such as salad bars, before the food is set out.
   - Use dedicated serving utensils and gloves for allergen-free foods.
   - Label items on the serving line correctly and clearly so that items containing food allergens are easily recognizable.
   - Ensure that tables and chairs are cleaned and sanitized before and after each meal and when needed.
7. Follow your school’s procedures for identifying students with food allergies.

MONITORING:
A child nutrition employee continually monitors receiving, preparation, and serving areas to assess whether food allergy procedures are being followed.
CORRECTIVE ACTION:
1. Retrain any child nutrition employee found not following the procedures in this SOP.
2. Refrain from serving any food to a student with a food allergy if there is any question as to whether or not an allergen might be present in that particular food.
3. Activate the school emergency action plan immediately if a student with the potential for anaphylaxis consumes a food allergen.

VERIFICATION AND RECORD KEEPING:
The school nutrition manager will observe school nutrition staff to make sure they are following these procedures and are taking all necessary corrective actions. Keep a list of corrective actions taken.

DATE IMPLEMENTED: ________________ BY: ____________________

DATE REVIEWED: ________________ BY: ____________________

DATE REVISED: ________________ BY: ____________________
Labeling Activity

Identify the unlabeled white powders in the numbered bags based on the list provided below:

White Powder Choices:

<table>
<thead>
<tr>
<th>Abrasive sink cleaner</th>
<th>Corn starch</th>
<th>Powdered lemonade mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-purpose flour</td>
<td>Dry-carpet cleaner</td>
<td>Powdered sugar</td>
</tr>
<tr>
<td>Baking soda</td>
<td>Granulated sugar</td>
<td>Salt</td>
</tr>
<tr>
<td>Baking powder</td>
<td>Laundry detergent</td>
<td>Sanitizer</td>
</tr>
<tr>
<td>Coffee creamer</td>
<td>Pancake mix</td>
<td>Vanilla pudding mix</td>
</tr>
</tbody>
</table>

1. ____________________  6. _______________________
2. ____________________  7. _______________________
3. ____________________  8. _______________________
4. ____________________  9. _______________________
5. ____________________ 10. _______________________

Why is it important to label everything in the kitchen?
_________________________________________________________________________
_________________________________________________________________________

What labeling system is in place in your facility's kitchen?
_________________________________________________________________________
_________________________________________________________________________
Cross-Contamination Activity

Dip a piece of your sponge once into the chicken blood (paint). Dot the sponge on the paper until you can no longer see any marks.

How many dots did you get? ________________

Explain what this demonstrates to you.

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

List five places in your kitchen where cross-contamination can occur:

1. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________

What are some strategies that can be used in your kitchen to prevent cross-contamination?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
Clean Your Hands

Activity:

1. Get a small amount of Glo Germ and rub it evenly on your hands and wrists.
2. Wash your hands like you normally would.
3. Use a black light to highlight your handwashing skills.

List 3 areas of your hands that you should pay close attention to when washing your hands.

   a. ________________
   b. ________________
   c. ________________

Why is it important to make sure your hands are properly washed?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

What are some strategies that can be used in your kitchen to ensure that everyone is practicing good handwashing?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
Know Your Sanitizing Solution

Activity:

Each of the three containers has different amounts of sanitizing solution in them. One has the correct amount.

1. Using a different piece of test strip for each container, dip a test strip into each container (A,B,C).

2. Tape the three strips in the boxes below. List the PPM for each test strip and circle the one that has the correct amount of solution for sanitizing dishes.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPM:</td>
<td>PPM:</td>
<td>PPM:</td>
</tr>
</tbody>
</table>

Why is it important to have the correct sanitizer concentration?

_________________________________________________________________________
_________________________________________________________________________
Times, Terms, and Temperatures to Remember

Directions: Write a short answer describing the time, term, or temperature in the space provided.

1. 41 degrees to 135 degrees F

2. 4.6 to 7.5

3. 0 degrees F to 220 degrees F

4. Twenty seconds

5. 41 degrees F

6. 50% to 60%

7. 50 degrees F to 70 degrees F

8. Six inches

9. 165 degrees for 15 seconds

10. 155 degrees for 15 seconds

11. 145 degrees for 15 seconds

12. 130 degrees for 112 minutes

13. 135 degrees

14. 180 degrees
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>170 degrees for 30 seconds</td>
</tr>
<tr>
<td>16.</td>
<td>MSDS</td>
</tr>
<tr>
<td>17.</td>
<td>HACCP</td>
</tr>
<tr>
<td>18.</td>
<td>FIFO</td>
</tr>
<tr>
<td>19.</td>
<td>CCP</td>
</tr>
<tr>
<td>20.</td>
<td>FATTOM</td>
</tr>
<tr>
<td>21.</td>
<td>55 degrees to 120 degrees</td>
</tr>
<tr>
<td>22.</td>
<td>Cross connection</td>
</tr>
<tr>
<td>23.</td>
<td>Cross-contamination</td>
</tr>
<tr>
<td>24.</td>
<td>IPM</td>
</tr>
<tr>
<td>25.</td>
<td>Vacuum Breaker</td>
</tr>
<tr>
<td>26.</td>
<td>Pasteurization</td>
</tr>
<tr>
<td>27.</td>
<td>Ultra Pasteurized</td>
</tr>
<tr>
<td>28.</td>
<td>Hermetically Sealed</td>
</tr>
<tr>
<td>29.</td>
<td>Sanitizer</td>
</tr>
<tr>
<td>30.</td>
<td>Infection</td>
</tr>
</tbody>
</table>
31. Intoxication

32. Irradiation
Food Storage Safety

You just received your delivery; write in the space provided next to each item which shelf it belongs on (one item per shelf) in the refrigerator. Be sure to have the correct order from top to bottom.
Check the Temp

Select one thermometer from the table and calibrate it following the instructions provided.

How to Calibrate a Thermometer: Ice Point Method

- Fill a large glass with crushed ice. Add clean tap water until the glass is full and stir well.
- Put the thermometer stem or probe in the ice water mixture so that the entire sensing area is submerged. Do not let stem of the thermometer or probe touch the sides or bottom of the glass. Wait at least 30 seconds or until indicator stops moving.
- With the stem of the thermometer or probe still in the ice water mixture, use a wrench to turn the adjusting nut until the thermometer reads 32° (0°C). If calibrating a digital thermometer, press the retest button to automatically calibrate the thermometer.

Why is it important to calibrate thermometers regularly?

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

When should a thermometer be calibrated?

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
Allergies and Food Labels Activity

This activity will use food labels you may have seen in the kitchen before. Using the label provided to you, answer each one of the questions below.

1. What is the name of the product you are checking for allergens?

2. Before you look at the label, what allergens would you expect this product to have?

3. Now, looking at the packaging, are any of the eight common allergens listed in the ingredient list? If yes, what are they?

4. Do the allergens listed match up with what you expected them to be?

5. Now look to see if the allergens are listed separately. If they are, do the listed allergens match up with what you found in the ingredient list? What are the allergens listed separately from the ingredient list?

6. Does the label list any information about being manufactured on shared equipment? If yes, what might the product contain in addition to the allergens you already found?

7. Did this product have any unexpected allergens in it? If yes, what were they?
Allergy Recipe Activity

On the recipe below, identify the following:
1. Common allergens
2. Ingredients that may contain hidden allergens
3. Whether or not an ingredient or direction has the potential for cross contact.
4. Whether or not a recipe step has the potential for cross contact.

Breakfast Burrito

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Weight or Measure (50 servings)</th>
<th>Common Allergen? (Yes or No)</th>
<th>Hidden Allergen? (Yes or No)</th>
<th>Cross Contact Risk? (Yes or No, and Why)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh large eggs</td>
<td>45 each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frozen whole-kernel corn</td>
<td>1 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low fat 1% milk</td>
<td>¾ cup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh green peppers, diced</td>
<td>8 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh onions, diced</td>
<td>14 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh tomatoes diced</td>
<td>2 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow mustard</td>
<td>¼ c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot pepper sauce</td>
<td>1 Tbsp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt</td>
<td>2 tsp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced fat cheddar cheese</td>
<td>10 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flour tortillas</td>
<td>50 each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directions</td>
<td>Cross Contact Risk? (Yes or No, and Why)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a mixer, using the paddle attachment, blend eggs, corn, milk, green peppers, onions, tomatoes, prepared mustard, hot pepper sauce, and salt.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pour 1 gal 2 cups of the above egg mixture into each steamtable pan (12&quot; x 20&quot; x 2 ½&quot;), which has been lightly coated with pan release spray. For 50 servings, use 2 pans. Cover with foil or metal lid.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bake: Conventional oven: 350° F for 60 minutes. Convection oven: 325° F for 50 minutes. Steamer: 30 minutes. CCP: Heat to 145° F or higher for 3 minutes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprinkle 5 oz. (1 ¼ cups) cheese on top of each pan. Cut each pan 5 x 5 (25 portions per pan).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place one portion in center of each tortilla. Fold from bottom first, sides second, and top third, like an envelope. Place 25 tortillas flap side down into each steamtable pan (12&quot; x 20&quot; x 2 ½&quot;). For 50 servings, use 2 pans.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat: Compartment steamer: for 2-3 minutes. Conventional oven: 300° F for 3 minutes covered with a clean damp cloth. Convection oven: 300° F for 3 minutes covered with a clean damp cloth. CCP: Hold for hot service at 135° F or higher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Lesson 1 Worksheet: Answer Key

Matching: *Draw a line from the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The safeguarding of food from anything that could harm the health of consumers (C)</td>
<td>A. Potentially hazardous foods (PHF)</td>
</tr>
<tr>
<td>2. A sickness that is caused by eating a contaminated food or drinking a contaminated beverage (G)</td>
<td>B. Temperature abuse</td>
</tr>
<tr>
<td>3. An incidence in which two or more people become sick and have the same symptoms after eating a common food; this is confirmed when a laboratory analysis shows the source of a sickness to be a specific food (E)</td>
<td>C. Food safety</td>
</tr>
<tr>
<td>4. A disease-producing microorganism (H)</td>
<td>D. Sanitary</td>
</tr>
<tr>
<td>5. An undesirable, non-food item present in food or water; examples include dirt, hair, broken glass, metal fragments, and bits of packaging materials (F)</td>
<td>E. Foodborne outbreak</td>
</tr>
<tr>
<td>6. Foods that support the growth of microorganisms (A)</td>
<td>F. Physical contaminant</td>
</tr>
<tr>
<td>7. Free of harmful levels of pathogens (D)</td>
<td>G. Foodborne illness</td>
</tr>
<tr>
<td>8. Holding foods in the temperature danger zone (at unsafe temperatures), which allows bacterial growth, or not cooking or reheating foods properly to destroy harmful microorganisms (B)</td>
<td>H. Pathogen</td>
</tr>
</tbody>
</table>
9. Why is foodborne illness a serious issue?
   - People eat food prepared out of the home
   - More hands are involved in preparing food
   - When people handle food, the chance of food contamination increases
   - Food establishments serve "at risk" people

10. Why is foodborne illness more serious than it was in the past?
   - Pathogens are harder to control
   - More food is being produced in fewer manufacturing plants
   - Food imports are on the rise

11. Why is there a need to study sanitation and safety?
   - Customer protection
   - Employee protection
   - Legal requirement
   - Good business practice
   - Pride in the workplace

12. The temperature danger zone is between 41 °F and 135 °F. Food becomes unsafe after four hours in the temperature danger zone.

13. Name the three basics food safety hazards:
   1) Biological contaminants
   2) Chemical contaminants
   3) Physical contaminants
14. The essential rules of food safety are:

1) *Clean*

2) *Separate*

3) *Cook*

4) *Chill*

15. What is the number one thing a child nutrition employee can do to curb the spread of foodborne illness?

- *Proper personal hygiene, including proper handwashing procedures*

16. Name the three most common factors responsible for causing foodborne illness:

1) *Time and temperature abuse*

2) *Cross-contamination*

3) *Poor personal hygiene*
## Lesson 2 Worksheet: Answer Key

*Match the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A measurement on a pH scale ranging from 0 (very acid) to 14.0 (very alkaline or basic), with 7.0 being neutral</td>
<td>G  A. Cross-contamination</td>
</tr>
<tr>
<td>2. Microorganisms that must have oxygen in order to grow</td>
<td>D  B. Bacteria</td>
</tr>
<tr>
<td>3. Microorganisms that cannot survive when oxygen is present</td>
<td>I  C. Food contamination</td>
</tr>
<tr>
<td>4. Living, microscopic, single-celled organisms that are involved in fermenting and spoiling foods which often cause disease</td>
<td>B  D. Aerobic microorganisms</td>
</tr>
<tr>
<td>5. The transfer of harmful microorganisms (pathogens) or other harmful substances from one food, water, or non-food item to another</td>
<td>A  E. Fungi</td>
</tr>
<tr>
<td>6. Microorganisms that can grow with or without oxygen, but have a preference for without; most pathogens are these</td>
<td>H  F. Food spoilage</td>
</tr>
<tr>
<td>7. Exposure of a food to a pathogen, or chemical or physical hazard; not usually detectable by sight, smell, or taste</td>
<td>C  G. Acidity</td>
</tr>
<tr>
<td>8. Damage to the edible quality of food, which may or may not lead to foodborne illness; often easily detectable by sight, smell, or taste</td>
<td>F  H. Facultative anaerobic microorganisms</td>
</tr>
<tr>
<td>9. Organisms that range from single-celled, microscopic organisms, such as yeasts and molds to multicellular organisms, such as mushrooms</td>
<td>E  I. Anaerobic microorganisms</td>
</tr>
</tbody>
</table>
Match the definition to the correct word.

10. A sealed package in which the oxygen has been reduced or replaced with other gases, such as nitrogen and carbon dioxide
   __N__  J. Parasite

11. Microscopic organisms
    __K__  K. Microorganisms

12. A fungus that produces a furry growth on vegetable or animal matter exposed to damp conditions
    __O__  L. pH

13. An organism that lives on or in, and feeds off of, another living thing
    __J__  M. Sous-vide

14. A symbol used to designate the acidity or alkalinity of a food
    __L__  N. Modified Atmosphere Packaging (MAP)

15. A process by which raw ingredients, often entire recipes, are sealed in plastic pouches and then the air is vacuumed out
    __M__  O. Mold

16.
   A. Food contamination is exposure of a food to a pathogen, or chemical or physical hazard and is not usually detected by sight, smell, or taste.

   B. Food spoilage is damage to the edible quality of food, which may or may not lead to foodborne illness and is often detected by sight, smell, or taste.

   C. Foodborne infection is caused by eating food that contains a living, disease-causing microorganism (ex: Listeria monocytogenes, Hepatitis A, Taxoplasma gondii).

   D. Foodborne intoxication is caused by eating food that contains a harmful chemical or toxin produced by bacteria or other source (ex: Staphylococcus aureus, Clostridium botulinum).

   E. Toxin-mediated infection is caused by eating food that contains harmful microorganisms that will produce a toxin once inside the human body (ex: E. coli 0157:H7, Clostridium botulinum).
17. Factors Affecting the Growth of Microorganisms:

1) Food
2) Acidity
3) Temperature
4) Time
5) Oxygen
6) Moisture

18. Cross-contamination is when harmful microorganisms can be transferred from one item to another. Typically, microbes from a raw food are transferred to a cooked or ready-to-eat food by contaminated hands, equipment, or utensils.

- Explain the three ways cross-contamination may occur:

  1) Food to food: Thawing beef is stored above an uncovered salad and drips into it

  2) Hand to food: Food handler scratches body and then handles food with bare hands

  3) Equipment to food: Meat slicer is used to slice raw meat and then to slice bologna for cold sandwiches without being washed

- The California Retail Food Code requires that employees wear gloves when contacting food or food-contact surfaces if they have cuts, sores, artificial nails, etc.

19. Which of the following does NOT explain why bacteria are the most common cause of foodborne disease in a food establishment?

a) Under ideal conditions, bacteria can grow very rapidly.
b) Bacteria are found naturally in many foods.
c) Bacteria can be easily transferred from one food source to another.
d) Bacteria need a host to survive.
20. Most bacteria that cause foodborne illness grow:

   a) With or without oxygen between 41°F and 135°F.
   b) **Without oxygen between 41°F and 165°F**.
   c) With oxygen between 41°F and 135°F.
   d) With or without oxygen between 41°F and 165°F.

21. Which of the following organisms is most likely to cause foodborne illness in a food establishment?

   a) **Salmonella**
   b) *Crytosporidium parvum*
   c) *Anasaki*
   d) *Trichanella spiralis*

22. Bacteria grow best within a narrow temperature range called the temperature danger zone. The temperature danger zone is between:

   a) 0 °F and 220 °F
   b) 32 °F and 135 °F
   c) **41 °F and 135 °F**
   d) 41 °F and 165 °F

23. Bacteria that cause foodborne illness will only grow on foods that have a pH range of ___ to ___.

   a) 3.2 to 9.0
   b) **4.6 to 7.0**
   c) 5.0 to 7.0
   d) 7.0 to 9.0

24. Bacteria that cause foodborne illness will only grow on foods that have a water activity (Aw) above ___.

   a) **0.85**
   b) 0.70
   c) 0.46
   d) 0.10
25. Why do some bacteria form spores?

   a) To reproduce
   b) To move more easily from one location to another
   c) To survive adverse environmental conditions
   d) To survive without oxygen

26. Which of the following is NOT considered a potentially hazardous food?

   a) Red meat
   b) Fish and shellfish
   c) Poultry and eggs
   d) Dried rice

27. The most effective way to control the growth of bacteria in a food establishment is to control:

   a) Time and temperature
   b) Oxygen and pH conditions
   c) Temperature and water activity
   d) Water activity and food availability
Lesson 3 Worksheet: Answer Key

Matching: Draw a line from the definition to the correct word.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Free of dirt, food particles, or other visible soil (C)</td>
<td>A. Potable water</td>
</tr>
<tr>
<td>2. Water that is safe to drink (A)</td>
<td>B. Sanitize</td>
</tr>
<tr>
<td>3. Free of harmful levels of pathogens (D)</td>
<td>C. Clean</td>
</tr>
<tr>
<td>4. To treat a surface that has been cleaned to reduce the number of disease-causing microorganisms to safe levels (B)</td>
<td>D. Sanitary</td>
</tr>
<tr>
<td>5. The physical removal of dirt, food residues, and other visible soil (F)</td>
<td>E. Rinsing</td>
</tr>
<tr>
<td>6. The removal of cleaners (E)</td>
<td>F. Washing</td>
</tr>
</tbody>
</table>

7. The two methods of equipment sanitation are:
   I. *Heat*
   II. *Chemical*

8. The California Retail Food Code specifies that food contact surfaces of equipment and utensils used with potentially hazardous food be cleaned at least every *four* hours when in constant use.

9. What are the proper steps in the manual dishwashing operation after scraping and pre-rinsing?
   a) Wash, rinse, sanitize, and towel dry
   b) Rinse, wash, sanitize, and air dry
   c) **WASH, RINSE, SANITIZE, AND AIR DRY**
   d) Rinse, wash, sanitize, and towel dry
10. When sanitizing with hot water in manual dishwashing, what should the temperature of the water in the final rinse be?

a) 140° F  
**b)** 171° F  
c) 194° F  
d) 212° F

11. Which of the following statements is **false**?

a) In manual heat sanitizing, dishes must be immersed in water at 171 °F or above for at least 30 seconds.  
b) Pre-scraping helps remove food from dishes, which helps the wash water clean the dishes.  
c) Iodine is less corrosive than chlorine.  
d) **Sanitizing is a process that removes soil and prevents accumulation of food residues on equipment, utensils, and surfaces.**

12. The recommended water temperature range for sanitizing solutions is between ____ and ____.

a) 55 °F and 120 °F  
**b)** 75 °F and 120 °F  
c) 41 °F and 140 °F  
d) 140 °F and 171 °F

13. The strength of a chemical sanitizer in manual dishwashing must be checked often because…

a) If the chemical is too strong, it ruins dishes.  
b) The chemical strength increases over time and leaves a toxic residue on equipment.  
c) **The strength of chemical sanitizers may drop off as pathogens are killed and the sanitizer is diluted with rinse water.**  
d) The chemical strength increases with time and could corrode the metal on equipment.

14. Which is not a recommended sanitizer for a food establishment?

a) Chlorine  
b) Iodine  
c) Quaternary Ammonia Compounds  
d) **Ammonia**
15. Which of the following statements is false?

   a) Keeping things clean is the responsibility of every person working in the food industry.
   b) **To be sanitary, a piece of equipment must be free of all pathogens.**
   c) Food service workers should not wear medical information jewelry while working with food.
   d) Food service workers should report any suspected foodborne illness to supervisors.
Lesson 4 Worksheet: Answer Key

1. Directions: Complete the crossword by filling in a word that fits each clue.

Across
2. When harmful microorganisms are purposely put into food, water, etc. in order to make people sick and die
3. ________ Connection: Any physical link through which contaminants from drains, sewers, or waste pipes can enter a potable water supply
5. Solid waste, which is not disposed of through the sewage system
7. Back ________: A type of backflow that occurs when a loss of pressure in the water supply causes dirty water or chemicals to be sucked back into the potable water supply.
10. Water that is safe to drink

Down
1. Material Safety Data Sheet, a summary of important information about a chemical provided by the manufacturer and which must be kept where employees can find it
2. A backward flow of contaminated water, caused by back pressure or back siphonage, into a potable water supply

Word Bank
- Backflow
- Bioterrorism
- Coving
- Cross
- Garbage
- MSDS
- Pest
- Potable
- Refuse
- Siphonage
- Ventilation
4. A troublesome animal or insect that often carries disease or filth into the food service environment
6. A system of exhaust fans, hoods, and filters designed to remove steam, smoke grease, heat, and airborne contaminants from the air around food preparation areas and equipment
8. A curved, sealed 3/8 inch-edge between the wall and the floor
9. Waste that cannot be recycled

2. A good floor plan can:
   A. Promote safety
   B. Minimize distances traveled by employees
   C. Prevent cross-contamination

3. An air gap is the most dependable backflow prevention device.

4. Identify common pests found in the food service environment.
   I. Cockroaches
   II. Rodents
   III. Flies
   IV. Moths and Beetles

5. Circle one: Do or Do Not install insect control devices over food preparation areas or in close proximity to exposed food and/or food-contact surfaces!

6. Which of the following statements is FALSE?
   a) Toilet facilities must be available for all employees.
   b) Employee toilet facilities must be conveniently located and accessible during working hours.
   c) Separate toilet facilities should be provided for men and women.
   d) Poor sanitation in toilet facilities will influence customer’s opinions about cleanliness, but will not promote the spread of disease.
7. The most effective device for protecting the potable water system from contamination by backflow is a (an)...

   a) **Air gap**  
   b) Double check valve  
   c) Reduced pressure backflow preventer  
   d) Vacuum breaker

8. For air gaps, the vertical distance from the supply pipe (faucet) to the flood rim must be at least:

   a) **Two times the diameter of the supply pipe, but never less than 1 inch.**  
   b) Two times the diameter of the supply pipe, but never less than 2 inches.  
   c) Three times the diameter of the supply pipe, but never less than 1 inch.  
   d) Four times the diameter of the supply pipe, but never less than 2 inches.

9. Which of the following statements is FALSE?

   a) Proper disposal and storage of garbage is needed to prevent food contamination and avoid pests.  
   b) A trash receptacle must be provided in each area of the establishment where refuse is generated.  
   c) Garbage receptacles must be durable, clean, nonabsorbent, leak-proof, and pest-proof.  
   d) **Trash may be stored outdoors in plastic bags provided the bags are stored at least 15 inches off the ground.**

10. Which one of the following situations requires corrective action?

    a) A trash can with the lid off while in use  
    b) **A handwashing station with a multi-use cloth towel for hand drying**  
    c) Light colored ceramic tile being used for the walls of the food preparation area  
    d) Anti-slip flooring provided in the dishwashing area

11. Back siphonage is likely to occur if:

    a) **The pressure in the potable water system drops below that of a non-potable or contaminated water source.**  
    b) Contamination is forced into a potable water system through a connection that has a higher pressure than the water system.  
    c) Pressure builds up in a sewer line due to blockage.  
    d) The water seal in a kitchen trap is siphoned out.
12. The primary responsibility of food establishment managers in pest control is to ensure that:

   a) *Everyone in the facility practices good sanitation principles that will prevent contamination of food and water, and eliminate areas for pests to hide.*
   b) Pesticides are applied by licensed operators.
   c) The pest control operator they use employs integrated pest management.
   d) The garbage area is kept free of litter.

13. The best way to encourage employees to wash their hands when needed is to:

   a) Provide separate restrooms for employees and for customers.
   b) *Provide handwashing stations near work areas.*
   c) Provide hand sanitizers instead of handwashing lavatories in food preparation areas.
   d) Put up a sign in the employee locker room reminding them of proper handwashing.

14. Coving is a (an):

   a) *Curved sealed edge between the floor and wall that eliminates sharp corners to make cleaning easier.*
   b) Anti-slip floor covering used to protect workers from slips and falls.
   c) Plastic material used to seal cracks and crevices under and around equipment in a food establishment.
   d) Device used to prevent back siphonage.
**Lesson 5 Worksheet: Answer Key**

*Match the definition to the correct word.*

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clean, free of harmful microorganisms</td>
<td><strong>D</strong> A. Hazard</td>
</tr>
<tr>
<td>2. Monitoring cold storage units by placing thermometers in the warmest area (usually by the door) and the coldest area (usually in the back) and sometimes including a read-out panel outside the unit to check the inside temperature without opening the door</td>
<td><strong>G</strong> B. Control point</td>
</tr>
<tr>
<td>3. A point in the food flow that needs to be controlled so that biological, chemical, and physical contamination does not occur</td>
<td><strong>B</strong> C. Food Process Flow</td>
</tr>
<tr>
<td>4. An action taken if a critical limit is not met</td>
<td><strong>F</strong> D. Aseptic</td>
</tr>
<tr>
<td>5. A point during the food flow where hazards can be prevented, eliminated, or reduced to acceptable levels</td>
<td><strong>E</strong> E. Critical control point</td>
</tr>
<tr>
<td>6. The boundaries set to make sure that a possible hazard is prevented, eliminated, or reduced to an acceptable level</td>
<td><strong>H</strong> F. Corrective Action</td>
</tr>
<tr>
<td>7. The path that food follows from receiving through serving</td>
<td><strong>C</strong> G. Cold Storage units temperature monitoring</td>
</tr>
<tr>
<td>8. A danger that is likely to cause illness or injury if not controlled</td>
<td><strong>A</strong> H. Critical limits</td>
</tr>
</tbody>
</table>
Match the definition to the correct word.

9. A food safety system that focuses on identifying hazards within the flow of food in a food service operation and developing procedures to reduce the risk of foodborne illness and outbreaks

10. Establishing a procedure to determine if the critical limit is being met

11. A process, used most often with milk, that destroys all disease-causing microorganisms and reduces the total number of bacteria, thus increasing shelf life

12. Contaminated or infected

13. A strip of liquid crystals that changes color when packaged goods reach an unsafe temperature

14. Milk pasteurized using ultra-high temperatures and packaged aseptically

15. Determines if established critical limits and corrective actions are preventing, eliminating, or reducing hazards to an acceptable level

16. What does HACCP stand for?

   Hazard

   Analysis and

   Critical

   Control

   Points
17. HACCP is a system to help prevent foodborne illness through…

A. Proper food handling
B. Monitoring
C. Recordkeeping

The Seven HACCP Principles:

1. **Conduct a hazard analysis**

2. **Determine the critical control points**
   The most common critical control points are:
   
   A. Cooking
   B. Cooling
   C. Reheating
   D. Hot/cold holding

3. **Establish critical limits**

4. **Establish monitoring procedures**

5. **Establish corrective actions**

6. **Establish verification procedures**

7. **Establish recordkeeping and documentation procedures**
18. The eight steps of the food service process are:

1. Purchasing
2. Receiving
3. Storing
4. Preparing
5. Cooking
6. Serving and holding
7. Cooling
8. Reheating

19. The two most common food thermometer types are:

I. Bi-metallic stemmed thermometers
II. Digital thermometers

The two calibration methods are:

I. Ice-Point Method
II. Boiling-Point Method

20. The temperature of frozen food should be measured by…

a) Inserting the sensing probe into the center of a package until the temperature stabilizes.

b) **Inserting the sensing probe between two packages until the temperature stabilizes.**

c) Measuring the ambient temperature of the frozen food compartment of the delivery vehicle.

d) Looking for signs of freezing and thawing, such as large ice crystals or frozen juices in the box.
21. Frozen foods should not be accepted at a food establishment if…
   a) They have large ice crystals on the surface.
   b) The package is intact.
   c) The temperature is below 32 °F.
   d) The temperature of the delivery truck is 32 °F.

22. Which practice requires corrective action?
   a) Products in the dry storage area are being rotated on a first-in, first-out stock basis.
   b) Foods stored in the walk-in freezer are stored on slatted shelves that are 6 inches above the floor.
   c) Raw beef is stored above salad in the refrigerator.
   d) Pesticides are stored in a locked and labeled cabinet in the dry food storage area.

23. Which of the following is the preferred method for thawing potentially hazardous foods?
   a) In the microwave oven
   b) At room temperature
   c) In the refrigerator
   d) On the counter

24. Hot foods should be held at _______ or above and cold foods should be held at _______ or below.
   a) 165 °F; 41 °F
   b) 165 °F; 32 °F
   c) 135 °F; 41 °F
   d) 135 °F; 32 °F

25. Poultry and stuffed meats should be cooked to an internal temperature of _______ for 15 seconds to be considered safe.
   a) 140 °F
   b) 145 °F
   c) 155 °F
   d) 165 °F
26. Ground beef should be cooked to an internal temperature of ______ for 15 seconds to be considered safe.
   
   a) 140 °F  
   b) 145 °F  
   c) 155 °F  
   d) 165 °F

27. Regardless of the type of food, all potentially hazardous foods that have been cooked and cooled need to be reheated to an internal temperature of ______ within 2 hours to be considered safe.
   
   a) 140 °F  
   b) 145 °F  
   c) 155 °F  
   d) 165 °F

28. All foods that are to be held cold must be held at ______ or below.
   
   a) 41 °F  
   b) 50 °F  
   c) 70 °F  
   d) 0 °F

29. The Hazard Analysis and Critical Control Points (HACCP) system should be employed...
   
   a) Whenever potentially hazardous foods are prepared.  
   b) Only in institutional foods facilities that provide food for very young or elderly consumers.  
   c) Only in convenience stores where mechanical dishwashing equipment is not available.  
   d) Only when foods are sold for consumption off site.

30. Which is an example of a critical control point?
   
   a) Poultry purchased from approved sources.  
   b) Chicken and noodles are heated on the stove until the center of the poultry reaches 165 °F for 15 seconds.  
   c) Only pasteurized milk is used by the school.  
   d) The cutting board is washed and sanitized between chopping carrots and celery for the garden salad.
# Supplemental Lesson Worksheet: Answer Key

Match the definition to the correct word.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A specific type of immune system response to a food</td>
<td>C. Immunoglobulin E (IgE)</td>
</tr>
<tr>
<td>2. A substance that causes an allergic reaction</td>
<td>I. Celiac disease</td>
</tr>
<tr>
<td>3. A protein in the body that reacts and attaches to specific substances</td>
<td>F. Food allergy</td>
</tr>
<tr>
<td>4. A protein or other substance that antibodies attach to</td>
<td>K. Anaphylaxis</td>
</tr>
<tr>
<td>5. A type of immune system cell found in body tissues</td>
<td>M. Basophils</td>
</tr>
<tr>
<td>6. A type of immune system cell found in blood</td>
<td>E. Antibodies</td>
</tr>
<tr>
<td>7. A type of antibody found on basophils and mast cells</td>
<td>A. Cross-contact</td>
</tr>
<tr>
<td>8. A severe allergic reaction that results in a drop in blood pressure and difficulty breathing</td>
<td>D. Medical Statement to Request Special Meals and/or Accommodations</td>
</tr>
<tr>
<td>9. A sensitivity to a food that does not involve IgE</td>
<td>L. Allergen</td>
</tr>
<tr>
<td>10. A immune system reaction to gluten that causes damage to the lining of the intestine</td>
<td>B. Lactose intolerance</td>
</tr>
<tr>
<td>11. Inability to digest lactose</td>
<td>J. Antigen</td>
</tr>
<tr>
<td>12. Required form when meal accommodations are made to insure they are reimbursable</td>
<td>H. Food intolerance</td>
</tr>
<tr>
<td>13. When allergens from a food are transferred to another food</td>
<td>G. Mast cells</td>
</tr>
</tbody>
</table>
14. *Anaphylaxis* is the most dangerous food allergy reaction, because it can result in death if not treated quickly.

15. The eight most common food allergies are:

   1) *Milk*
   2) *Eggs*
   3) *Peanuts*
   4) *Tree nuts*
   5) *Fish*
   6) *Shellfish*
   7) *Soy*
   8) *Wheat*

16. Those with celiac disease need to avoid:

   i. *Wheat*
   ii. *Rye*
   iii. *Oats*
   iv. *Barley*

17. Developing a Food Allergy Management Plan:

   - Have a written *plan* for how you will handle food allergies
   - Know what to *avoid* and substitute
   - Read *labels*
   - *Prepare* the kitchen and cafeteria
   - Identify the *students*
   - Develop *cleaning* procedures
18. Which of the following is one of the most common food allergies?
   a) Gluten
   b) Strawberries
   c) Wheat
   d) MSG

19. Food allergies are mediated by which of the following?
   a) Immunoglobin E (IgE)
   b) Immunoglobin G (IgG)
   c) Histamine
   d) Epinephrine

20. Which of the following is NOT a symptom of a food allergy?
   a) Itchiness in the mouth
   b) Rash or hives
   c) Runny nose
   d) Fever

21. Which of the following statements about anaphylaxis is true?
   a) It is a symptom of celiac disease.
   b) It is only caused by peanut allergies.
   c) It can result in death if not treated.
   d) It is treated with antihistamines.

22. People with celiac disease need to avoid which of the following?
   a) Wheat, Rice, Oats, and Barley
   b) Wheat, Rye, Oats, and Barley
   c) Rye, Rice, Oats, and Lactose
   d) Wheat, Lactose, Casein, and Whey

23. Which of the following can sign a Medical Statement to Request Special Meals and/or Accommodations?
   a) Registered nurse
   b) Registered dietitian
   c) Licensed pharmacist
   d) Licensed physician
24. Which of the following is TRUE about accommodating food allergies and intolerances?

   a) Agencies are required to make accommodations for all allergies and intolerances.
   b) Accommodations for food intolerances do not require a signed medical statement.
   c) A food allergy that results in a severe, life-threatening reaction is considered a disability.
   d) A note on a physician’s letterhead can substitute for a signed medical statement.

25. What is it called when a food that does not contain an allergen comes into contact with a food that does?

   a) Cross contact
   b) Cross-contamination
   c) Hidden allergen
   d) Control point
## Times, Terms, and Temperatures to Remember: Answer Key

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>41 degrees to 135 degrees F</td>
</tr>
<tr>
<td>2.</td>
<td>4.6 to 7.5</td>
</tr>
<tr>
<td>3.</td>
<td>0 degrees F to 220 degrees F</td>
</tr>
<tr>
<td>4.</td>
<td>Twenty seconds</td>
</tr>
<tr>
<td>5.</td>
<td>41 degrees F</td>
</tr>
<tr>
<td>6.</td>
<td>50% to 60%</td>
</tr>
<tr>
<td>7.</td>
<td>50 degrees F to 70 degrees F</td>
</tr>
<tr>
<td>8.</td>
<td>Six inches</td>
</tr>
<tr>
<td>9.</td>
<td>165 degrees for 15 seconds</td>
</tr>
<tr>
<td>10.</td>
<td>155 degrees for 15 seconds</td>
</tr>
<tr>
<td>11.</td>
<td>145 degrees for 15 seconds</td>
</tr>
<tr>
<td>12.</td>
<td>130 degrees for 112 minutes</td>
</tr>
<tr>
<td>13.</td>
<td>135 degrees</td>
</tr>
<tr>
<td>14.</td>
<td>180 degrees</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>15. 170 degrees for 30 seconds</td>
<td>Minimum requirement for hot water sanitizing in manual dishwashing</td>
</tr>
<tr>
<td>16. MSDS</td>
<td>Material Safety Data Sheet</td>
</tr>
<tr>
<td>17. HACCP</td>
<td>Hazard Analysis and Critical Control Points</td>
</tr>
<tr>
<td>18. FIFO</td>
<td>First In First Out</td>
</tr>
<tr>
<td>19. CCP</td>
<td>Critical Control Point</td>
</tr>
<tr>
<td>20. FATTOM</td>
<td>Acronym for “Food, Acidity, Time, Temperature, Oxygen, and Moisture” conditions necessary for bacterial growth</td>
</tr>
<tr>
<td>21. 55 degrees to 120 degrees</td>
<td>Recommended temperature for chemical sanitizing in either hand washing or mechanical dishwashing</td>
</tr>
<tr>
<td>22. Cross connection</td>
<td>A link between your drinkable water system and unsafe water or chemicals through which backflow can occur</td>
</tr>
<tr>
<td>23. Cross-contamination</td>
<td>Transfer of harmful substances to food by hands, food-contact surfaces, or cleaning cloths that touch raw food, are not cleaned and sanitized, and then touch ready-to-eat food</td>
</tr>
<tr>
<td>24. IPM</td>
<td>Integrated Pest Management</td>
</tr>
<tr>
<td>25. Vacuum Breaker</td>
<td>Designed for use under a continuous supply of pressure. Spring-loaded device to operate after extended periods of hydrostatic pressure</td>
</tr>
<tr>
<td>26. Pasteurization</td>
<td>A low heat treatment used to destroy disease-causing organisms and/or extend the shelf life of a product by destroying organisms and enzymes that cause spoilage</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>27. Ultra Pasteurized</td>
<td>27. A pasteurization that takes place using ultra-high temperatures and then the food item is placed in aseptic packaging</td>
</tr>
<tr>
<td>28. Hermetically Sealed</td>
<td>28. A container that is completely sealed against the entry of bacteria, molds, yeasts, and filth as long as it remains intact</td>
</tr>
<tr>
<td>29. Sanitizer</td>
<td>29. Approved substance or method to use when sanitizing</td>
</tr>
<tr>
<td>30. Infection</td>
<td>30. Illness caused by eating food that contains living disease-causing microorganisms</td>
</tr>
<tr>
<td>31. Intoxication</td>
<td>31. Illness caused by eating food that contains a harmful chemical or toxin</td>
</tr>
<tr>
<td>32. Irradiation</td>
<td>32. Exposure of food to low level radiation to prolong shelf life and eliminate pathogens</td>
</tr>
</tbody>
</table>
Food Storage Safety: Answer Key

You just received your delivery; write in the space provided next to each item which shelf it belongs on (one item per shelf) in the refrigerator. Be sure to have the correct order from top to bottom.

A
B
C
D

B
D
C
A
School Nutrition Program Directors – those hired on or after July 1, 2015 – are subject to the new education requirements below. Existing directors will be grandfathered in their current positions as well as in the Student Enrollment category where they are working. (School Nutrition Directors are individuals responsible for the operation of school nutrition for all schools under the education agency (LEA).

<table>
<thead>
<tr>
<th>Minimum Requirements for Directors</th>
<th>Student Enrollment 2,499 or less</th>
<th>Student Enrollment 2,500 – 9,999</th>
<th>Student Enrollment 10,000 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Education Standards (required) (new directors only).</td>
<td>Bachelor’s degree, or equivalent educational experience, with academic major in specific areas,* OR Bachelor’s degree in any academic major, and State-recognized certificate for school nutrition directors; OR Associate’s degree, or equivalent educational experience, with academic major in specific areas,* and at least one year of relevant school nutrition programs experience; OR High school diploma (or GED) and three years of relevant experience in school nutrition programs. (LEAs with less than 500 students: State agency may approve a candidate that meets the educational standards but had less than three years of experience).</td>
<td>Bachelor’s degree, or equivalent educational experience, with academic major in specific areas,* OR Bachelor’s degree in any academic major and a State-recognized certificate for school nutrition directors; OR Bachelor’s degree in any academic major and at least two years of relevant school nutrition programs experience; OR Associate’s degree, or equivalent educational experience, with academic major or concentration in food and nutrition, food service management, dietetics, family and consumer sciences, nutrition education, culinary arts, business, or a related field; and at least 2 years of relevant school nutrition programs experience.</td>
<td>Bachelor’s degree, or equivalent educational experience, with academic major in specific areas,* OR Bachelor’s degree in any academic major, and a State-recognized certificate for school nutrition directors; OR Bachelor’s degree in any major and at least five years of experience in management of school nutrition programs.</td>
</tr>
<tr>
<td>Minimum Prior Training Standards (required) (new directors only)</td>
<td>At least 8 hours of food safety training is required either not more than 5 years prior to their starting date or completed within 30 calendar days of employee’s start date.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
USDA Professional Standards
Summary of Continuing Education Requirements for ALL School Nutrition Employees

SNA is your resource for professional standards!

REQUIRED TRAINING FOR ALL SCHOOL NUTRITION EMPLOYEES

New and Current Directors
For School Year 2015-2016 ONLY: at least 8 hours of annual continuing education/training.
Beginning school year 2016-2017: at least 12 hours of annual continuing education/training.
This required continuing education/training is in addition to the food safety training required in the first year of employment.

New and Current Managers
For School Year 2015-2016 ONLY: at least 6 hours of annual continuing education/training.
Beginning school year 2016-2017: at least 10 hours of annual continuing education/training.

New and Current Staff
For School Year 2015-2016 ONLY: at least 4 hours of annual continuing education/training.
Beginning school year 2016-2017: at least 6 hours of annual continuing education/training.

New and Current Part-Time Staff
(less than 20 hours per week)
Each year, at least 4 hours of annual continuing education/training (regardless of number of part-time hours).

If hired January 1 or later, an employee may only complete half of the required training hours for that school year.

Training is an approved use of State Administrative Expenses (SAE) funds and a variety of training formats are allowed. States may use contractors or partner with other organizations (School Nutrition Association and National Food Service Management Institute, etc.) to provide training.
USDA Professional Standards
Summary of Requirements for State Directors

SNA is your resource for professional standards!

HIRING STANDARDS FOR NEW STATE DIRECTORS

State Director of Nutrition Program

A Bachelor’s degree with an academic major in areas including food and nutrition, food service management, dietetics, family and consumer sciences, nutrition education, culinary arts, business, or a related field.

Extensive relevant knowledge and experience in areas such as institutional food service operations, management, business, and/or nutrition education.

Additional abilities and skills needed to lead, manage, and supervise people to support the mission of school nutrition programs.

State Director of Distributing Agencies

A Bachelor’s degree.

MINIMUM PRIOR TRAINING REQUIREMENTS FOR ALL STATE AGENCY DIRECTORS

Director of School Nutrition Program

At least 15 hours of annual continuing education/training.

Must PROVIDE, or ensure that State agency staff receives continuing education/training.

Must PROVIDE a minimum of 18 hours of training to SFAs each year.

State Director of Distributing Agencies

Each year, at least 15 hours of annual continuing education/training.

Must PROVIDE, or ensure that State food distribution staff receives continuing Education training.
Prevalence of Childhood Food Allergies in the United States
Lyndsey Ruiz, BS, DTR

School nutrition program professionals feel that additional training on special diets and food safety is necessary to better accommodate increasing food allergies (Lee, Kwon, & Sauer, 2014). This desire for additional training was reported by Lee, Kwon, and Sauer (2014) as a result of focus groups with child nutrition professionals. Focus group participants expressed a concern that prevalence and variation of food allergies in children have increased in recent years. This summary reviews data on food allergy reporting and examines whether prevalence (occurrence at a single point in time) and incidence (the rate of new cases in a specific population during a certain timeframe) of childhood food allergies in the United States have increased.

According to Boyce et al. (2010), people often have confusion in distinguishing between nonallergic food reactions, such as gastrointestinal distress caused by lactose intolerance, and food allergies, which has been defined in the Guidelines for the Diagnosis and Management of Food Allergy in the United States (Guidelines) as “an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food.” The National Institute of Allergy and Infectious Diseases assembled and led an expert panel in the development of the Guidelines to help resolve this misunderstanding, which led to a public perception of an increase in food allergies (Boyce et al., 2010). Among other details, the Guidelines include criteria for diagnosing food allergies versus food intolerances, or other nonallergic reactions, and help identify areas needing future research (Boyce et al., 2010).

Currently, studies examining incidence, prevalence, and epidemiology of childhood food allergy in the United States are limited (Boyce et al., 2010). This deficiency may be due to limitations causing inaccuracy in comparing data collected before use of the Guidelines. Prior to the Guidelines, there was neither a consensus on the definition of food allergy nor well-accepted criteria for diagnosis (Chafen et al., 2010; Sicherer & Sampson, 2013). With inconsistencies between studies, assessing results to determine prevalence was most likely unreliable.

Many previously conducted studies performed analyses using self-reported data collected via phone interviews (Boyce et al., 2010). Although there are clinical tests that can be utilized in diagnosing food allergy, widespread use of these tests for research is limited due to need for specialized staff, time, and expense among other factors (Chafen et al., 2010). However when comparing overall prevalence of food allergy, a meta-analysis by Rona et al. (2007) found drastically different values for self-reported food allergy and food allergy diagnosed with one of three clinical tests. The researchers stated an overall prevalence of self-reported food allergy to be 12% for children and 13% for adults (Rona et al., 2007). Self-reported values were much higher than the overall prevalence of 3% for all ages when using a skin prick test, checking for serum IgE markers, or by double-blind, placebo-controlled food challenge (Rona et al., 2007). These results show that food allergies tend to be over-reported when relying on self-reported data alone.
Although many studies draw food allergy prevalence conclusions based on self-reported data, Branum and Lukacs (2009) utilized the National Ambulatory Medical Care Survey, the National Hospital Ambulatory Medical Care Survey, and the National Hospital Discharge Survey to estimate food allergy prevalence in American children. Overall, data analyzed using these surveys found an approximate tripling in food allergy prevalence; however the researchers acknowledge that this apparent increase could be due to better coding and reporting of food allergies rather than a true increase in disease (Branum & Lukacs, 2009).

Several studies claim that there is evidence of increased prevalence in food allergy, but base their conclusion on self-reported data which has shown to be unreliable. Also due to a lack of studies in the United States, especially since the 2010 publication of the Guidelines, data used to estimate food allergy prevalence was not collected consistently.

Therefore, a determination on whether food allergy prevalence in children has increased cannot be certain. Possibly, the growth is valid due to an actual increase. Or, the growth may be an over-reported incidence because the majority of data collected was self-reported. Hopefully with increased usage of the Guidelines, a more accurate figure for prevalence of childhood food allergy in the United States may be determined in the near future.
References


