

**CHAPTER
1**

Keeping Food Safe

Activity A Lesson 1.1

Understanding Foodborne Illness

Carefully study the lesson and then answer the following questions.

1. What is a foodborne illness?

2. When is a foodborne illness identified as an outbreak?

3. What are biological hazards?

4. What is a pathogen?

5. What are bacteria?

6. What are time and temperature control for safety (TCS) foods?

Controlling the time TCS foods are exposed to unsafe temperatures helps limit the growth of bacteria. Use Figure 1.1 from the textbook as a guide to select the food item from each of the following groups that requires time and temperature control to keep it safe.

7. _____
A. Baked chicken.
B. Canned beans.
C. Beef jerky.
D. Dry beans.
8. _____
A. Flour.
B. Bread.
C. Sugar.
D. Banana pudding.
9. _____
A. Cheese puffs.
B. Cheese sticks.
C. Cheese flakes.
D. Croutons.
10. _____
A. Whole tomatoes.
B. Precut fresh tomatoes.
C. Canned tomatoes.
D. Sun-dried tomatoes.
11. _____
A. Cut fresh spinach in a bag.
B. Whole cucumbers.
C. Packaged cereal.
D. Strawberries.
12. _____
A. Flan.
B. Dried rice.
C. Crackers.
D. Pecans.
13. _____
A. Garlic powder.
B. Whole garlic.
C. Minced garlic in oil.
D. Garlic flakes.
14. _____
A. Pinto beans.
B. Canned bean sprouts.
C. Sesame seeds.
D. Fresh alfalfa sprouts.

Activity B Lesson 1.1

Foodborne Illness Investigation

Select a common foodborne pathogen that can cause a foodborne illness from Figure 1.3 to highlight in the following investigation.

1. Pathogen name

2. Category

3. Symptoms

4. Common food sources

5. List three actions to take to avoid a foodborne illness from this pathogen.

Activity C Lesson 1.1

What Do You Know About Biological Hazards?

Indicate whether each of the following statements about biological hazards is true or false.

1. ____ Bacteria that require oxygen are called *anaerobic bacteria*.
2. ____ Bacteria that can grow either with or without oxygen are called *facultative bacteria*.
3. ____ Spores are the survival mechanism for some bacteria.
4. ____ Live bacteria do not need to be ingested for an infection to occur.
5. ____ Intoxication is the result of ingesting toxins left behind by bacteria.
6. ____ A toxin-mediated infection occurs when bacteria are ingested and then produce harmful toxins while in the human digestive tract.
7. ____ The food source contributes little to the growth of bacteria on it.
8. ____ Limes are less likely to grow bacteria because their pH value is alkaline.
9. ____ The temperature danger zone is where bacteria grow the fastest.
10. ____ A virus is a very small, infectious agent that invades another cell and causes it to reproduce the virus.
11. ____ Edible mushrooms are a type of virus.
12. ____ Fermentation is the process by which yeast consumes sugar and expels alcohol and carbon dioxide gas.
13. ____ Temperatures above 140°F (60°C) kill molds and their toxins.
14. ____ Parasites can be transmitted to humans if they eat meat or fish infested with parasites.
15. ____ You can easily detect if fish are infested with ciguatoxins or histamines by smelling them.

Activity D Lesson 1.2

Time and Temperature

Answer the following questions after carefully reading the lesson.

1. Describe four ways to thaw food safely.

List the minimum internal cooking temperature and time required for the following TCS foods.

2. Poultry; stuffing made with meat, poultry, or fish; stuffed meat, poultry, seafood, or pasta; previously cooked TCS foods that are being reheated to serve: ____°F (____°) for ____ seconds

3. Hot-held eggs, ground meats, ground fish, injected meats such as brined ham and flavor-injected roasts, mechanically tenderized meat, meat from flightless birds such as ostrich or emu: ____°F (____°C) for ____ seconds

4. Steak or chops of beef, pork, veal, or lamb; fish and shellfish; commercially raised game; shell eggs that are cooked to order: ____°F (____°C) for ____ seconds

5. Roasts of pork, beef, veal, or lamb: ____°F (____°C) for ____ minutes

6. Cooked foods must be held at a minimum internal temperature of ____°F (____°C).

Complete the following after carefully reading the lesson.

7. Cooked food must be cooled from ____°F (____°C) to ____°F (____°C) in two hours or less.

8. In less than a total of ____ hours, hot food must be cooled from 135°F (57°C) to 41°F (5°C) or less.

9. Foods prepared from room temperature ingredients must be cooled to 41°F (5°C) within ____ hours.

10. List five techniques for chilling food safely and rapidly.

SAMPLE

Activity E Lesson 1.2

Using a Three-Compartment Sink

Health code requires that most commercial kitchens have a three-compartment sink. In the space below, describe the steps for using a three-compartment sink to clean and sanitize effectively.

Step 1.

Step 2.

Step 3.

Step 4.

Step 5.

Step 6.

Activity F Chapter 1

Vocabulary Review

Part 1

Match the content term with the correct definition.

Definitions

1. _____ A system that identifies and manages key steps in food handling where contamination is most likely to occur.
2. _____ A licensed professional who uses various chemicals, sprays, and traps to prevent or eliminate infestations.
3. _____ A list of the composition of a chemical product, proper procedures for storage and handling, and what to do in the event of an emergency.
4. _____ When a chemical contaminates a food.
5. _____ The creation and practice of clean and healthy food-handling habits.
6. _____ When an allergen is transferred from its food of origin to a food that does not contain the allergen.
7. _____ Specialized gear that is worn to protect against injury or exposure to chemicals.
8. _____ Food that requires controlling the time the food is exposed to unsafe temperatures to help limit bacterial growth.
9. _____ When harmful microorganisms are transferred from one product to another by hands, utensils, equipment, or other physical contact.
10. _____ A step in food handling at which control can be applied to prevent or eliminate a food safety hazard.
11. _____ Bacteria that require oxygen.
12. _____ The measure of acidity or alkalinity of a substance.
13. _____ The amount of water available for microbial growth in a product.
14. _____ Solid materials that pose a danger to the consumer when present in food.
15. _____ Occurs when bacteria are ingested and then produce harmful toxins while in the human digestive tract.
16. _____ Bacteria that thrive without oxygen.
17. _____ Sickness caused by eating unsafe food.
18. _____ An organism that causes illness in humans.

Content Terms

- A. aerobic bacteria
- B. anaerobic bacteria
- C. chemical hazard
- D. critical control point (CCP)
- E. cross-contact
- F. cross-contamination
- G. foodborne illness
- H. Hazard Analysis Critical Control Point (HACCP)
- I. pathogen
- J. personal protective equipment (PPE)
- K. pest control operator (PCO)
- L. pH
- M. physical hazard
- N. safety data sheet (SDS)
- O. sanitation
- P. time and temperature control for safety (TCS) food
- Q. toxin mediated infection
- R. water activity (a_w)

Part 2

Definitions

19. ____ A protein that the body misinterprets as dangerous and produces a reaction by the immune system.
20. ____ A condition of being free of dirt, grease, or grime.
21. ____ An environment that is free from pathogens.
22. ____ A microscopic fungus that consumes sugar and expels alcohol and carbon dioxide gas.
23. ____ Bacteria that can grow either with or without oxygen.
24. ____ A large family of single-celled fungi.
25. ____ The temperature range in which bacteria reproduce rapidly; between 41°F and 135°F (5°C and 57°C).
26. ____ Single-celled organisms that reproduce by dividing.
27. ____ Illness resulting from live bacteria.
28. ____ A very small, infectious agent that invades another cell and causes it to reproduce the agent.
29. ____ The presence of unsafe substances or levels of dangerous microorganisms in food.
30. ____ Illness resulting from ingestion of toxins left behind by bacteria.
31. ____ A thick-walled “supersurvival unit.”
32. ____ A harmful organism that causes foodborne illness.
33. ____ The amount of a substance in a given volume.
34. ____ Any surface, such as a table, cutting board, or piece of equipment, that food touches.
35. ____ An organism that lives in and feeds on the body of another live creature.
36. ____ Three adjacent sinks used to clean, rinse, and sanitize small equipment and utensils.

Content Terms

- A. allergen
- B. bacteria
- C. biological hazard
- D. clean
- E. concentration
- F. contamination
- G. facultative bacteria
- H. food-contact surface
- I. infection
- J. intoxication
- K. mold
- L. parasite
- M. sanitary
- N. spore
- O. temperature danger zone
- P. three-compartment sink
- Q. virus
- R. yeast

