Chapter 44

Safety and Sanitation

Terms to Learn

- **danger zone**
- **food-borne illness**
- **sanitation**

Objectives

This chapter will help you to:

- Identify the sources of danger in the kitchen.
- Demonstrate basic safety rules to avoid cuts, burns, and electric shocks.
- Suggest ways to prevent food-borne illness.
- Explain the use of heat and cold to control bacteria.

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Safety and sanitation are vitally important whenever you work in the kitchen. Safe work habits can help you avoid accidents such as burns, cuts, electric shocks, and falls. **Sanitation** means *keeping harmful bacteria from growing in food* by keeping the kitchen, appliances, tools, and yourself clean, as well as washing, cooking, and storing food properly.

Safety and sanitation rules are especially important when you are preparing food with a group, such as in the food preparation lab. By following rules, you can prevent injuries and the transmission of illness to yourself or your classmates. Proper safety and sanitation practices are equally important when you are preparing food at home.

Kitchen Safety

Knowledge is one of the most useful resources for working in a kitchen. Knowing what dangers might occur will help you avoid them. If you pay close attention to your work, develop careful work habits, and follow safety rules consistently, your kitchen will be a safe and pleasant place.

Sources of Danger

Some kitchen dangers are obvious. Knives and open cans are sharp, and an oven or range gets hot rapidly when it is turned on. However, there are also other, less obvious dangers. Grease on the floor can cause you to slip and fall. Metal pots, pans, and tools can get very hot very quickly. Even food can be so hot that it can burn.

Many electric appliances can cause shock if they have frayed cords, are used without following instructions, or are used near water. In addition, leaks from gas appliances, such as ranges, are very dangerous because they can cause explosions and fires.

Finally, cleaning products stored in the kitchen can cause serious injuries. Many common cleaning agents are poisonous if they are swallowed. They can cause irritation or injury if they splash into a person's eyes. These products can be very dangerous, especially to young children.

Simple safety devices can be purchased and installed to prevent children from opening drawers with dangerous contents.

Safety Precautions

The following safety rules will help prevent cuts, burns, electric shock, and other serious injuries that can occur in the kitchen. The list is long, but learning and following these rules can help you, your family, and your friends and classmates prevent kitchen accidents.

To prevent cuts:

- Always hold a knife by its handle and cut by moving the knife blade away from your fingers. Use a cutting board.
- Wash knives separately from other dishes or utensils.
- Insert beaters into a mixer and cutting blades into a food processor before plugging in the appliances.
- Watch out for sharp edges on the lids and rims of opened cans.

To prevent burns and scalding:

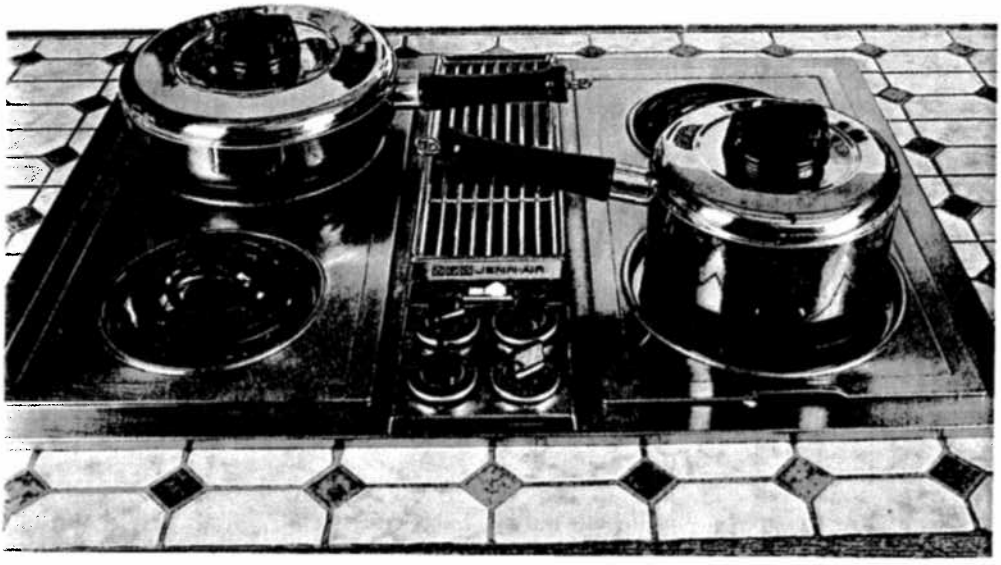
- Use a plastic-handled spoon to stir hot foods—metal handles can get too hot.
- Use pot holders to handle hot pots, pans, utensils, and oven racks.
- Keep pan handles turned in over the center of the range or over a counter so that the pans won't get knocked off the range.
- Lift the far side of a pan's cover first so that the steam won't burn you.

To prevent fires:

- Keep paper, dish towels, cleaning cloths, and all other flammable materials away from the range.
- Keep your sleeves and other parts of your clothing away from flames and hot burners. Tie back long hair. Don't wear loose, flowing garments while working in the kitchen.
- Clean all grease from the surfaces of the oven and the range top. Check and clean the vent above the burners, where grease collects.
- Smother a grease fire by turning off the heat source and covering the pan. Never use water.
- Keep a fire extinguisher handy.

To prevent electric shocks:

- Plug only one electric appliance into an outlet at a time.
- Unplug appliances when they are not in use. Unplug them by pulling on the plug, not on the cord.
- Don't use appliances with frayed cords, and don't drape cords over the edge of a countertop.
- Keep electric appliances away from water, and don't touch them with wet hands.



Keep the handles of cooking pots turned so that you do not jar them and so that children cannot pull the contents over on themselves.

Don't stick metal objects such as knives or forks inside a toaster or other electric appliance.

o prevent other kinds of injuries:

Wipe up spills immediately.
Never leave anything on the floor where someone might trip over it.
Stand on a ladder or stool, not on a chair or box, to reach a high shelf.
Turn all range or appliance controls to "Off" when you have finished cooking.
Never turn on a gas range if you smell gas. Leave the building, report a gas leak to your gas company immediately, and follow the company's instructions precisely.
Store dangerous chemicals well out of the reach of children. Keep cabinet doors closed and, if necessary, secure them with childproof locks.

itchen Sanitation

Most of the dangers you have read about so are visible. Microscopic bacteria, however, n grow unseen in foods and cause serious, en fatal, illnesses. Fortunately, you can pre- nt the growth of harmful bacteria.

hat Is Food-Borne Illness?

Harmful bacteria can grow in food until the od becomes unsafe to eat. These bacteria e tiny living things that multiply rapidly and n be seen only with a microscope. A **food- rne illness** is *an illness caused by eating d that is contaminated with harmful bac- ia.* Examples of food-borne illnesses in- de salmonella poisoning and botulism. Salmonella is a bacterium that grows in h foods as poultry and eggs. It is often ead from one food to another by improper aning of cooking utensils and cutting rds. Symptoms of salmonella poisoning in- de nausea, diarrhea, mild to severe mps, and fever.

lotulism is a more serious, often fatal type ood-borne illness. It affects the nervous tem. Improperly canned (often home-canned) foods are usually the source of botulism. Symptoms include difficulty breathing, trouble swallowing, and double vision. Never taste or eat food from leaking or bulging cans or cracked, chipped, or unsealed jars.

Making Decisions

Reporting Sanitation Problems

As Julio entered the restaurant, he recalled his interview with Jed, the kitchen manager. "Show me that you can do the job," Jed had told him, "and you'll move up in this business fast." Julio had plans for himself. He was very interested in learning the restaurant business.

As Julio settled into his work at the salad station, he noticed something that startled him. One of the cooks tasted the soup with the stirring spoon, then put it back in the pot. Later in the day he noticed another worker use one knife to cut both meat and vegetables without washing it in between.

Julio was hesitant about saying anything, but later he talked to Jed. "Don't worry about it, OK?" said his boss. "You do your work and let the others do theirs. We don't want any problems here."

Julio said nothing, but it wasn't easy when he began to notice other basic sanitation rules broken repeatedly. Julio's mind was swirling. Everyone at his last job had been so careful. Were they the exception? Was what he was seeing here more realistic? Maybe it wasn't such a big deal. On the other hand, what if someone got food poisoning? Should I call the health department, Julio wondered, but what about my job?

What Would You Do?

1. What options does Julio have?
2. Suggest some possible short- and long-term consequences of each option you identified.
3. Should risks to others carry more weight than those to yourself when you decide how to act? Explain.
4. What would you do if you were Julio? Why?

STRATEGIES That Work

Safe Packed Lunches

Without refrigeration, a packed lunch can be a source of food-borne illness, especially if kept in a warm place, where bacteria thrive. You can take precautions, however, to pack lunches safely.

Using an insulated lunch container extends the time that your lunch is safe by helping keep foods either hot or cold. It also enhances their flavor.

Some foods and drinks—such as yogurt, milk, and juice—can be kept cold in a vacuum bottle. If you chill the bottle in the refrigerator before filling it, the contents will stay cold longer.

Another way to keep foods cold is to pack them frozen or pack them next to frozen food. You can make and freeze a sandwich the night before, for instance, as well as portions of juice or fruit. These will thaw by lunchtime and keep other foods cool. An ice pack or gel freezer pack in your lunch container also helps keep the contents cold.

If your lunch must be kept at room temperature longer than four hours, avoid sandwiches made with eggs or meat. Peanut butter and aged cheeses are safe alternatives. You can also pack portion-sized cans of tuna or meat along with bread and make your sandwich just before eating it.

Such hot foods as spaghetti and stew—fresh or leftover—also make nutritious packed lunches. You can freeze portion-sized containers of leftovers several months before, then microwave as needed. To keep foods hot, use a widemouthed vacuum bottle. Prepare the bottle by filling it with clean hot water and letting it stand for two minutes. Heat the food to steaming hot. Pour the water from the bottle and add the food. Be sure the food still feels hot to the touch at lunchtime.

Making the Strategy Work

Think . . .

1. What would be a safe way to pack a garden salad or fresh fruit salad for lunch?
2. What containers would you need if you wanted hot leftovers for your packed lunch?
3. The beef stew in your vacuum bottle is only lukewarm at lunchtime. A friend says that it is still safe to eat because it was thoroughly cooked before. Do you accept this reasoning? Why?

Try...

Make a list of foods you like that would be good leftovers for a packed lunch. How could you store and transport them safely?

Sanitation Practices

Careless sanitation practices not only spread food-borne illness but also can pass on other types of illness in raw or undercooked food. To prevent the spread of any illness when preparing food, use these basic rules:

- Use hot, soapy water to wash tools, utensils, cutting boards, and other surfaces every time you prepare food. Pay special attention when items come into contact with raw meat, poultry, or eggs.
- Wash your hands well before working with food and after using the restroom.
- Wash fresh fruits and vegetables thoroughly under cold, running water. Wash the tops of cans before opening.
- Use a clean plate for cooked food. Never use the same plate that held the raw food.
- Use only clean dishcloths, sponges, and towels to avoid spreading germs.
- Keep pets out of food preparation areas. Never allow cats to jump on countertops.

- Use separate towels for wiping dishes and drying your hands.
- Use a tissue when you must sneeze or cough, and turn away from the food. Then wash your hands.
- Keep your hair out of the food. If your hair is long, tie it back.
- Use a separate spoon, not your fingers, for tasting food. If the spoon has been used for tasting once, wash it thoroughly before using it again.
- Avoid touching the eating surfaces of plates, flatware, and glassware when you set the table.

Dealing with Pests

Pests, another kitchen concern, are insects or small animals that carry dirt and bacteria. Flies, ants, cockroaches, mice, and rats contaminate foods and surfaces with their eggs or with diseases they carry.

Methods for combating pests vary. Always choose a method that is effective and safe. Insecticides are available in both sprays and traps. If you use a spray, don't spray it in places that come in contact with food. In fact, don't allow insecticides in *any* form to come in contact with food or with surfaces, utensils, or containers that will touch food. If the pest problem persists, call a professional exterminator to deal with it.

Proper Temperatures

Bacteria grow to dangerous levels most rapidly within a particular range of temperatures. The **danger zone** is *a range of temperatures between 60°F and 125°F (16°C and 52°C).* Do not keep perishable and cooked foods within this range for more than two hours. Heating and storing foods properly can avoid potential problems. Figure 44.1 shows you safe and unsafe temperatures for handling food.

Heating Foods

High temperatures, such as those reached when boiling food, can kill most harmful bacteria. Length of cooking time

Figure 44.1

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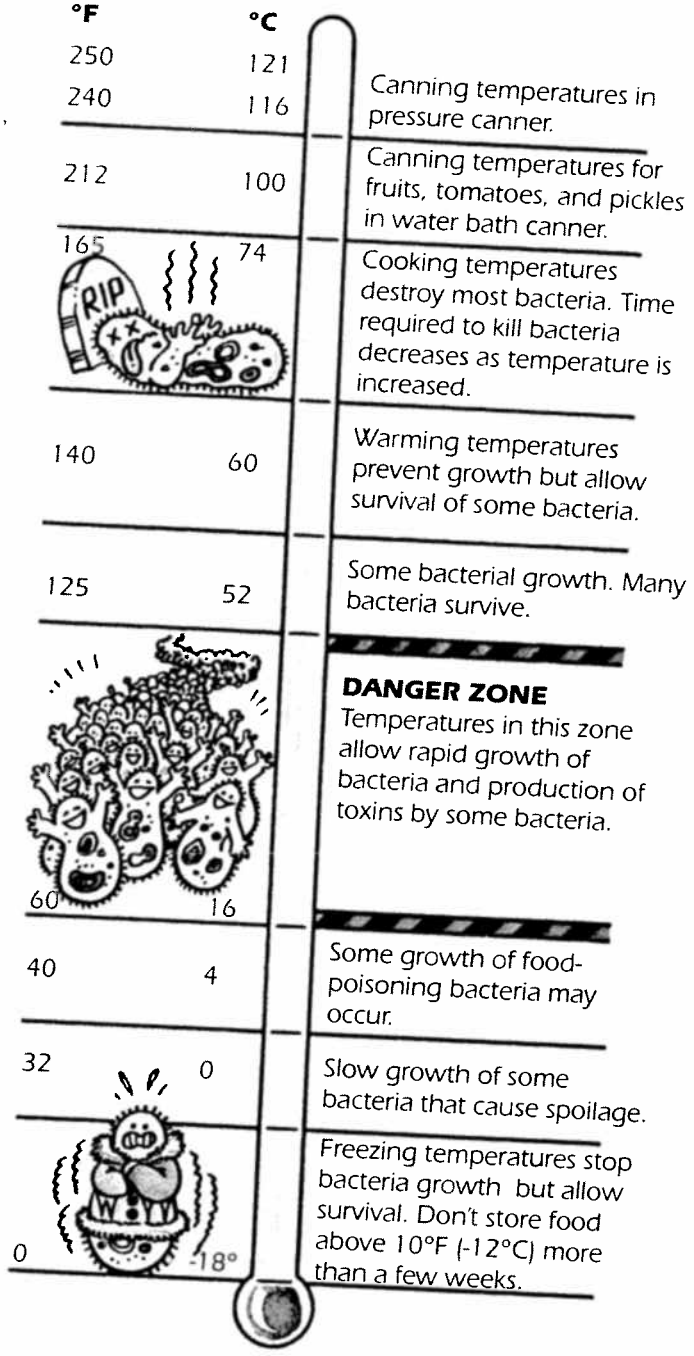

and degree of temperature will vary, depending on the type of food. For example, pork must be cooked until its internal temperature is 170°F (77°C). If it is not cooked enough, tiny worms that may be in the pork may survive, causing a serious disease called trichinosis. *E. coli* is a dangerous foodborne illness that can result from eating contaminated, rare beef. Unpasteurized milk or apple juice can also be contaminated with E. coli.

Once food is cooked, keep it hot until it is eaten. Then cover and refrigerate leftovers in two hours or less. Be especially careful with poultry stuffing. Recent research shows that stuffing should be cooked separately from chicken and other poultry to avoid possible salmonella contamination.

Cooling Foods

Low temperatures slow down, but do not stop, the growth of bacteria. For this reason, food stays fresh in the refrigerator, but only for a limited time. **Figure 44.2** lists the refrigerator storage times for some common foods.

Take extra care with foods that spoil quickly, such as milk and meat. Egg-rich foods, such as custards, provide bacteria with a rich environment in which to grow. Always refrigerate these foods promptly.

Freezing food does not kill bacteria but keeps it from growing. During and after thawing frozen foods, take care to avoid the danger zone. The bacteria may still be alive and could grow to harmful levels if not handled properly. Chapters 50 to 53 provide additional information on how to properly handle many foods.

Figure 44.2

Refrigeration Storage

One to two days

Poultry
Fish and shellfish
Ground meat
Store-cooked convenience meals
Variety meats (liver, kidneys, etc.)
Cream pies

Three to five days

Cold cuts (opened)
Fresh meats: beef, lamb, pork, veal (not ground)
Leftover cooked meats and meat dishes
Ham slices, fully cooked
Salads, store-prepared

Up to seven days

Milk, cream
Cottage cheese
Bacon
Whole ham, fully cooked
Hard cooked eggs
Hot dogs (opened package)
Smoked sausage
Cakes and pies

Up to three weeks

Eggs
Sour cream
Hard cheese, opened
Hard sausage

Up to three months

Butter
Margarine
Salsa, opened
Salad dressing, opened

Six Months

Ham, unopened can
Hard cheese

Note: If a food says "refrigerate after opening" or was refrigerated at the store, do so at home. Most fresh fruits and vegetables should be stored in the refrigerator, except potatoes, onions, and sweet potatoes.

Review

Reviewing the Facts

1. What are four types of accidents that can occur in the kitchen?
2. List three ways to prevent burns.
3. Name two types of food-borne illness, and briefly describe the symptoms of each.
4. List at least three sanitation practices you should follow when handling food.
5. What is the purpose of washing fresh foods before cooking them?
6. What is the danger zone for food, and why is it called that?

Thinking Critically

1. Injuries from cuts and burns can happen in the food preparation lab. How would you respond to each type of injury?
2. Incidents of some types of food-borne illnesses, which were not common in the past, are increasing. Why might this be occurring?

Applying Your Knowledge

1. **Creating a Safety Advertisement.** Write a one-minute TV commercial to promote safety. Feature one aspect of kitchen safety in your commercial. Suggest what visuals should be shown on camera, and create a brief script. If a video recorder is available, tape your commercial.
2. **Writing Sanitation Captions.** Cut out three pictures of foods from a magazine. Write a caption for each, explaining some sanitation practices to follow when preparing the food shown.
3. **Promoting Public Safety.** Food safety is especially important at picnics, when food may be left outside for some time. Make a list of safety recommendations for people planning picnics.

The Skills Challenge

Communication. Your grandparents leave food out "to cool" all evening after Sunday dinner. You know they use the leftover meat for sandwiches the next day. Grandma says she's always done it that way. Write a dialogue you might have without offending them.

Making Connections

1. **Health.** Use the Internet or library resources to research a food-borne illness not mentioned in this chapter. Find out the most frequent causes and the common symptoms. Look for information about prevention. Present an oral report to your class.
2. **Language Arts.** Choose a kitchen appliance, and prepare a safety handout about it. It should include a description of the appliance, its uses, and safety precautions.

Building Your Portfolio

Creating a Safety Checklist
Design a safety checklist that could be posted on your refrigerator. The checklist should cover the appliances and tools in your kitchen and other areas of potential danger there. Whenever possible, suggest solutions to problems. Add the checklist to your portfolio.