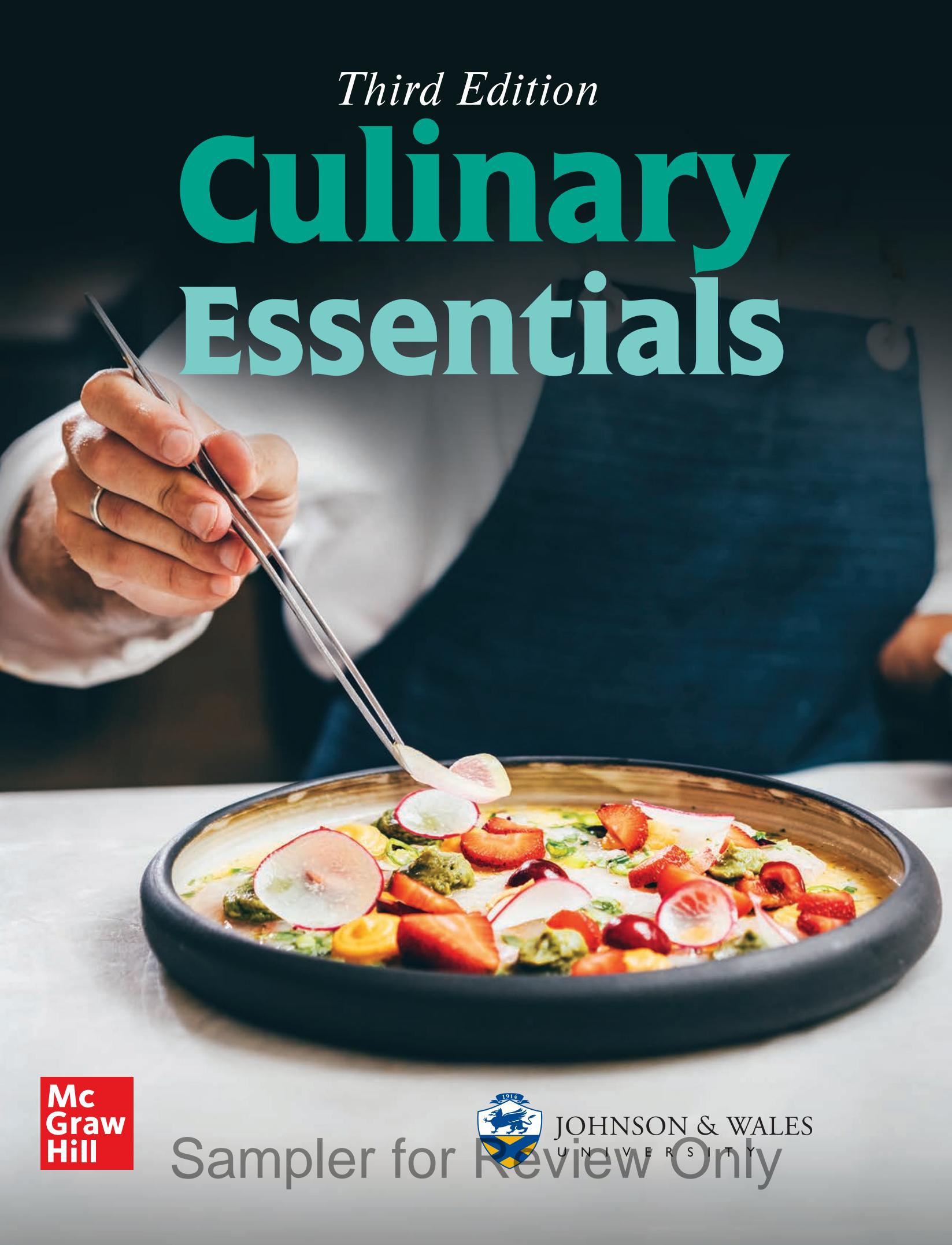


Third Edition

Culinary Essentials



Mc
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Hill

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JOHNSON & WALES
UNIVERSITY



Culinary Essentials



Sampler for Review Only

Safety Notice

The reader is expressly advised to consider and use all safety precautions described in this textbook or that might also be indicated by undertaking the activities described herein. In addition, common sense should be exercised to help avoid all potential hazards and, in particular, to take relevant safety precautions concerning any known or likely hazards involved in food preparation, or in use of the procedures described in *Culinary Essentials*, such as the risk of knife cuts or burns.

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Foreword

Johnson & Wales University is known as America's Career University. The University is student centered, employment-focused, market-driven, experientially based, and globally oriented. Johnson & Wales University collaborated with McGraw-Hill Education to bring you a unique textbook filled with the essential knowledge and skills needed to become a culinary professional.

Culinary Essentials will show you:

- the value of quality customer service to the dining experience.
- the role of foodservice management, standards, regulations, and laws.
- why safety and sanitation must be controlled at all times.
- how to use the equipment found in the professional kitchen.
- how culinary nutrition will enable you to create successful menus.
- how to use standardized recipes to control costs.
- the cooking techniques used in quantity food preparation.

Johnson & Wales' philosophy is to learn by doing, so we hope you make good use of this learning tool and pursue a rewarding career in culinary arts. We invite you to visit www.jwu.edu to learn more about Johnson & Wales University and culinary arts careers.



JOHNSON & WALES
UNIVERSITY

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Culinary Essentials—A Complete Program for Success!

A Student Edition Designed for Learning

Students gain knowledge and skills efficiently through a student edition with proven instructional design.

Students begin each topic with a **writing prompt**.

- **Reading Checks**
and
- **After You Read**
questions help
students master
content.

A Reading Guide provides clarity of chapter content and goals.

How To

End-of-chapter **Review and Applications** help students study and apply learning to real culinary situations.

Bring the Learning to Life With a Lab Manual

In the kitchen or the classroom, the student lab manual becomes the go-to resource for retaining technical knowledge and executing projects.

Name: _____ Date: _____ Class: _____																						
Chapter 1 Safety and Sanitation Principles																						
Section 1.1 Safety Basics																						
	Safety Precautions Describe Sanitation Products																					
<p>Directions: Select one checking the box for each category that is used in your lab. Read the books and material safety data sheets (MSDS) for these chemicals.</p> <p>These are the following categories:</p>																						
<table border="1"> <thead> <tr> <th>Chemical Name</th> <th>Equipment or Vehicle to Use</th> <th>Safety Precautions</th> </tr> </thead> <tbody> <tr> <td>Organic:</td> <td></td> <td></td> </tr> <tr> <td>Inorganic:</td> <td></td> <td></td> </tr> <tr> <td>Solvent:</td> <td></td> <td></td> </tr> <tr> <td>Acids:</td> <td></td> <td></td> </tr> <tr> <td>Alkalies:</td> <td></td> <td></td> </tr> <tr> <td>Acid-Base:</td> <td></td> <td></td> </tr> </tbody> </table>		Chemical Name	Equipment or Vehicle to Use	Safety Precautions	Organic:			Inorganic:			Solvent:			Acids:			Alkalies:			Acid-Base:		
Chemical Name	Equipment or Vehicle to Use	Safety Precautions																				
Organic:																						
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Acids:																						
Alkalies:																						
Acid-Base:																						
<p>Instructions to students: Check the boxes for each category that is used in your lab. Read the books and material safety data sheets (MSDS) for these chemicals.</p>																						

Name _____	Date _____	Class _____
<h1>Chapter 1 Safety and Sanitation Principles</h1>		
 Certification Test Practice <i>Preparation for Test</i>		
<p>Directions: Read the questions for preparing for tests. Then, take the test. Fill in the bubble next to the word that best completes the sentence or answers the question.</p>		
Top of Test Preparation		
<p>1. Choose the word that best completes the sentence or answers the question.</p> <p>a. Set out trash cans one at a time for the day. b. Set out trash cans all at once for the day. c. Set out trash cans all day for the day. d. Set out trash cans the day before the season. If a regular job goes to go to bed.</p> <p>2. On the day of the race try to eat _____ and don't drink _____.</p>		
<p>3. Identify the word that best completes the sentence or answers the question.</p> <p>a. Help to keep the workplace safe by writing workplace safety and health standards. <input checked="" type="radio"/> b. Help to keep the workplace safe by writing workplace safety and health standards. <input type="radio"/> c. Help to keep the workplace safe by writing workplace safety and health standards.</p> <p>4. For the race that requires a Roadrunner Assistance to move their tents and also place them in the correct place.</p> <p>a. Set up the tents in the correct place. <input checked="" type="radio"/> b. Set up the tents in the correct place. <input type="radio"/> c. Set up the tents in the correct place.</p> <p>5. Propane tanks are _____.</p> <p>a. dangerous <input checked="" type="radio"/> b. dangerous <input type="radio"/> c. dangerous</p> <p>6. For a race that has a _____.</p> <p>a. long big they are <input checked="" type="radio"/> b. long big they are <input type="radio"/> c. long big they are</p> <p>7. For the race that requires a Roadrunner Assistance to move their tents and also place them in the correct place.</p> <p>a. Set up the tents in the correct place. <input checked="" type="radio"/> b. Set up the tents in the correct place. <input type="radio"/> c. Set up the tents in the correct place.</p> <p>8. You should _____ on site as possible after an emergency.</p> <p>a. practice on emergency drill <input checked="" type="radio"/> b. practice on emergency drill <input type="radio"/> c. practice on emergency drill</p>		
<p>9. You should _____ on site as possible after an emergency.</p> <p>a. practice on emergency drill <input checked="" type="radio"/> b. practice on emergency drill <input type="radio"/> c. practice on emergency drill</p>		

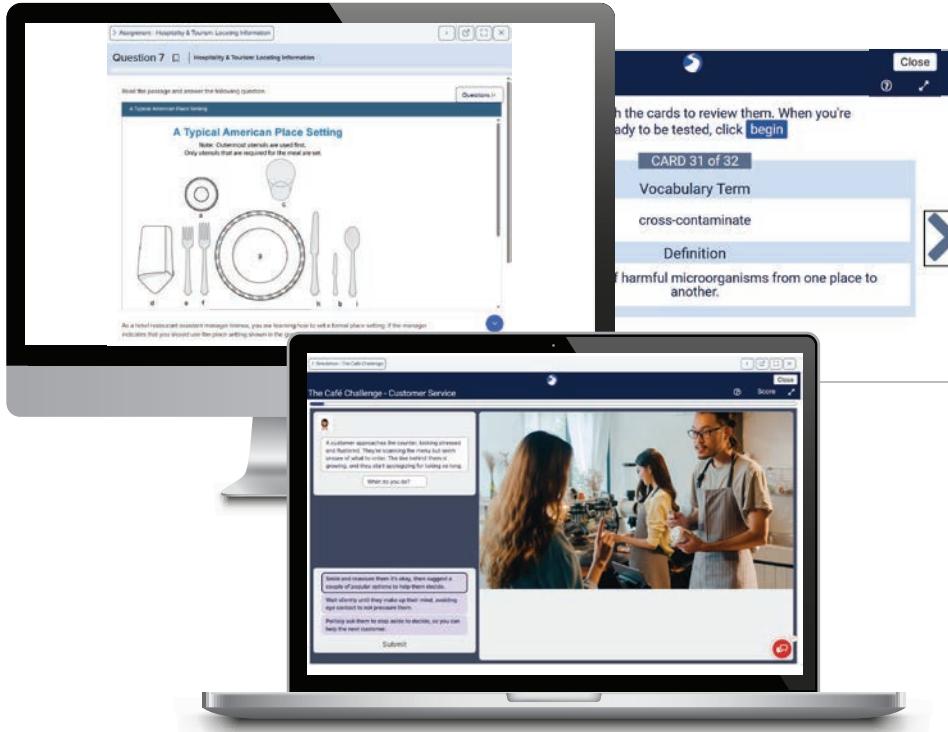
Learning guides help students write down and organize their understanding.

Assessments and certification practice ensure student understanding.

Projects help students apply their learning to real-life scenarios.

Dynamic Online Resources to Engage and Support Learning

Students develop soft skills, explore careers, deepen vocabulary, and assess their own understanding all in one place with **the online resources**, which fully integrate with your learning management and rostering system.



Online resources include:

- SmartBook™ – An adaptive eBook delivering content based on learning progress
- Student Edition Interactive eBook
- Assessments
- Vocabulary Activities and Flashcards
- Project-Based Learning (PBL)
- Note Taking Guides
- Graphic Organizers
- Soft Skills Simulations, Assessment, Readings, and PBL
- Career Exploration

Teaching Made Easy

From planning, to classroom activity, to assessments, the teaching resources support every kind of educator leading a culinary course.

Culinary Essentials
Chapter 1 Project

Project Guide
Driving Question: In what ways can advancements in technology, such as automated cleaning systems, improve kitchen safety and sanitation?

Research projects: Students can choose a specific topic or question to research and conduct research using a variety of sources such as books, articles, and interviews. Students can then analyze the data they have gathered and draw evidence-based conclusions.

Community service projects: Students can participate in sustained injury by conducting research on how to prevent injuries in the kitchen. They can design and develop protocols or solutions to real world problems. They can conduct research to understand the problem, brainstorm potential solutions, and develop a plan to implement their ideas.

Scientific investigations: Students can engage in sustained injury by conducting research on how to prevent injuries in the kitchen. They can design and develop prototypes to determine and measure their project's impact.

Historical or cultural research projects: Students can explore a specific historical or cultural event that has had an impact on the kitchen. They can research and analyze sources, analyze different perspectives, and develop a design or plan for the future of the topic they are investigating. Through presentations, models, or creative projects.

Traditional PBL Schedule
Week One: Conduct an in-depth discussion, brainstorms, and research related to the driving question. Students will determine the action steps for the project. By the end of the week, students should have a clear understanding of the problem and begin initial research.

Chapter 1 Safety and Sanitation - Lesson Plan
Section 1.1: Safety Basics
Section Overview: In this section, students will learn to identify potential sources of injury or fire. They will also learn about the proper equipment and emergency procedures to deal with fires and first aid measures for burns, scrapes, and cuts.

FOCUS: Bell Ringer Activity: Bring in a variety of protective clothing that might be worn in a kitchen, such as aprons, gloves, hats, or hair nets. Ask volunteers to demonstrate how to wear protective clothing and discuss the function of each piece with the class.

Develop Concepts:
Main Idea: Discuss the main idea with the students.
Ask: How can procedures for dealing with fires and injuries prevent and minimize damage? How can employees respond to an emergency? How can employees respond to an emergency if a fire occurs, and ensuring employees to be aware, react quickly to an emergency?

TEACH:
Guided Practice:

1. List Ask students to list the four types of open wounds, or cuts, and give examples for each. The four types of wounds are abrasions, or scrapes, cuts, lacerations, and puncture wounds. Ask students to identify each type of wound as it is seen in a finger, and puncture wounds, such as a刺 from a porcupine.
2. Explain Have students explain how to help someone who has a minor wound. Wear disinfected gloves, clean the wound with soap and running water, and apply a bandage. If the wound is bleeding, apply pressure to stop bleeding, and have the person above the heart to slow blood flow.
3. Explain Have students design a procedure for minor and major wound care.

Teaching resources include:

- Teacher's Edition eBook
- Teacher's Resource Manual – Includes lesson plans, bell-ringer activities, extra assessments, reteaching strategies, answer keys, culmination activities, and more.
- PowerPoint Presentations
- Project-Based Learning Support

Content aligned to FCS, language arts, math, science, and social studies standards!

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FOCUS ON

Prepare to Get Certified

Look for these resources to help you improve your certification score:

- Certification Prep
- Expert Advice
- Get Certified
- Career Skills Handbook

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Project-Based Learning

These features help you use your skills in real-life situations:

- Unit Culinary Projects
- Chapter Culinary Labs
- Master Recipes

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FOCUS ON

Academic Success
To help you succeed in your classes and on tests, look for these academic skills:

- Writing Tips
- Gourmet Math
- Science à la Carte
- A Taste of History
- Vocabulary Development



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Elements in these projects can build your culinary and academic skills:

- Applied Culinary Skills
- Academics Behind the Project
- Evaluation Rubrics

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Assessment

Look for review questions and activities to help you remember important topics:

- Reading Checks
- Section and Chapter Reviews
- Chapter Lab Activities

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Can you determine overtime pay for kitchen staff? Do you know how to form a permanent emulsion to make mayonnaise? The answers rest with your technical and academic knowledge. These academic features will help you succeed in school and in the workplace.

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Culinary Tips

Knowing important details makes a difference in a professional kitchen. This feature will give you information on everything from choosing utensils to determining the freshness of eggs.

~ Small Bites ~

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Can you properly knead dough or prepare a white stock? These step-by-step photo features will show you how to apply your culinary knowledge.

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Safety and Sanitation Principles

SECTIONS

- 1.1 Safety Basics
- 1.2 Sanitation Challenges

WRITING ACTIVITY

Freewriting

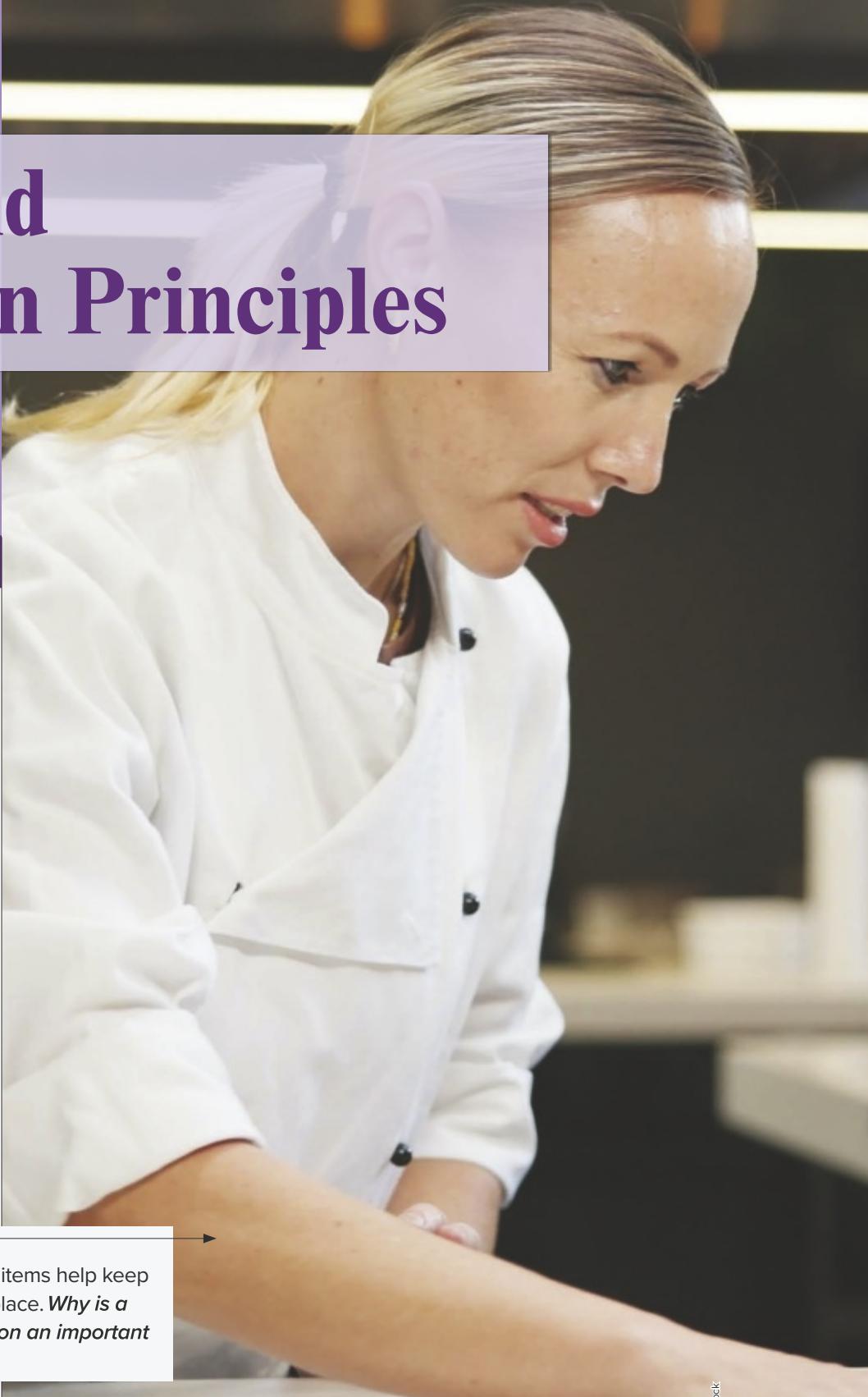
Visualize a commercial restaurant. Then, freewrite for five minutes about how you might prevent injuries in a commercial kitchen. Identify hazardous areas and what might be done to prevent accidents in those areas.

Writing Tips

- 1 Write the topic at the top of the paper to keep you focused.
- 2 Do not worry about form or structure.
- 3 Circle key ideas and phrases you can use later.

EXPLORE THE PHOTO

Safety and sanitation items help keep you safe in the workplace. *Why is a chef's coat or an apron an important item?*



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SECTION 1.1

Safety Basics

*Keep yourself
and others safe
in the kitchen.*

Reading Guide

Before You Read

Preview Read the key concepts below. Write one or two sentences that predict what the section is about.

Read to Learn

Key Concepts

- **Identify** possible culinary workplace safety issues.
- **Explain** fire safety equipment and emergency procedures.
- **Describe** first aid measures for burns, wounds, and choking.

Main Idea

Burns and injuries can easily occur in a foodservice workplace. Establish fire safety procedures and know first aid measures to prevent or minimize damage.

Content Vocabulary

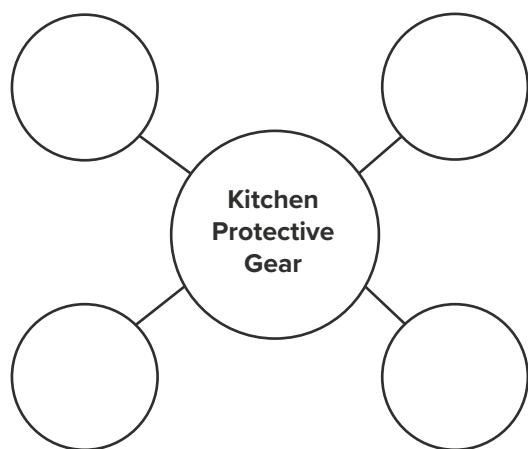
- occupational back support
- flammable
- lockout/tagout
- emergency
- first aid
- shock
- abrasion
- laceration
- avulsion
- puncture wound
- Heimlich maneuver
- cardio-pulmonary resuscitation (CPR)
- general safety audit

Academic Vocabulary

- routine
- document

Graphic Organizer

As you read, you will discover information about four types of kitchen protective gear. Use a graphic organizer like the one shown to list them.



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Safe Working Conditions

Accidents can easily occur in a busy kitchen. The government has written laws and codes to help protect workers on the job. But it is the personal responsibility of each worker to practice safety in the kitchen at all times. Safety is an ongoing process.

Many foodservice workplace accidents can be prevented. Government agencies help. The Occupational Safety and Health Administration (OSHA) helps keep the workplace safe by writing workplace safety and health standards. Employers must post OSHA standards in their facilities.

The Environmental Protection Agency (EPA) also plays a role in promoting workplace safety. The EPA requires foodservice operations to track how they handle and dispose of hazardous materials such as cleaning products and pesticides.

Personal Protective Clothing

Personal protective clothing, such as uniforms, aprons, and gloves, can help you practice safety in the workplace.

Aprons

Aprons are an important piece of protective clothing. Use these apron guidelines:

- Make sure aprons are clean. Bacteria can quickly grow on dirty aprons.
- Change aprons when yours gets dirty.
- Always remove your apron if you leave the food preparation area.
- Always remove your apron to take out the garbage.

Gloves

Gloves should be worn to protect your hands from injury. Gloves also help protect against food contamination by bacteria and physical hazards.

Wash your hands thoroughly with soap and water before you put on gloves. Follow a proper hand-washing **routine**, or regular set of actions, to make sure hands are completely clean.

The type of gloves you should wear depends on the task you need to do. For example, you should use heavy-duty plastic gloves to clean pots. Gloves are available in light, medium, and heavy weights. Workers with latex allergies may try nitrile ('nī-trēl) latex-free gloves.

Foodservice gloves are for a single use only. For example, the gloves you wear to crack and mix eggs should not be reused to make a sandwich. You should change your gloves when they become soiled or torn, after at least every four hours of single-use, and immediately after you handle any raw food.

Shoes

Shoes are also a form of protective clothing. Shoes should be sturdy and have slip-resistant soles for safety. All shoes must have closed toes.

Back Braces

Foodservice workers may wear a special back brace to help them lift heavy items. An **occupational back support** is a type of back brace with suspenders. It is designed to support the lower back while lifting.

Personal Injuries

Foodservice workers are responsible to help prevent slips and falls, cuts, burns and scalds, and other personal injuries in the kitchen. For example, call out, "Hot cart coming through!" when you transport large pots full of hot liquids. This can warn others in the kitchen and help prevent accidents.

Slips and Falls

Slips and falls are common work-related injuries. Yet most slips and falls can be avoided.

Prevent Injury Follow these rules to help prevent slips and falls in the kitchen:

- Walk, never run, in the kitchen.
- Wipe up spills immediately. Grease on a floor can cause you to slip or could cause equipment to slide.
- Use slip-resistant floor mats and make sure floors are in good repair.

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 **Burn Protection** Always use dry pot holders or oven mitts to handle hot items. *Why would you not want to use moist pot holders or oven mitts to handle hot items?*

- Wear shoes with slip-resistant soles. Never wear open-toed shoes.
- Use safe ladders or stools to reach high shelves. Never stand on a chair or a box.
- Always close cabinet drawers and doors.
- Ask for help or use a cart to move heavy objects.
- Keep traffic paths, especially around exits, aisles, and stairs, clutter free at all times. Floors that are still wet from cleaning can be dangerous. Many slips and falls happen on wet floors because they are slick with water and cleaning products. Always post appropriate warning signs for safety.
- Always use knives for their intended purpose only. Never use them to open plastic wrap or boxes, for example.
- Always cut away from your body, not toward your body. Cutting toward your body may cause an accident if your hand slips.
- Always carry a knife down at your side with the blade tip pointed toward the floor and the sharp edge facing behind you.
- Look where you place your hands when you reach for a knife.

Cuts

There are many sharp tools in a commercial kitchen. This means the risk of being cut in a commercial kitchen is high.

Sharp Tool Safety Guidelines Use these guidelines when you work with sharp tools to lower the risk of injury:

Safety Check

 **Do Not Mix!**

Although bleach and ammonia are both powerful cleaners, they should never be mixed. Mixing cleaners with these ingredients can cause chemical reactions that can create toxic, and even explosive, gasses.

CRITICAL THINKING *What can you do to ensure that bleach and ammonia cleaners are never mixed?*

- Never wave your hands while holding a knife.
- If you drop a knife, do not try to grab for it as it falls. Pick up the knife after it falls to the table or floor.
- Hold knives with a firm grip on the handle when you use them or carry them.
- Never leave a knife handle hanging over the edge of a work surface.
- Keep knife handles and hands dry when you use knives.
- Keep knives sharp. Dull knives require you to apply more pressure. This may cause your hand to slip.
- Use a cutting board. Cutting on a regular counter surface could cause your hand to slip. It could also damage the knife.
- Wear protective gloves and cuff guards to clean commercial slicers.
- Wash sharp tools separately from other tools and dishes. Never leave knives soaking in a sink.
- Throw away broken knives or knives with loose blades.
- Store knives in a knife kit or a knife rack.

Burns and Scalds

Commercial kitchens have many types of heat-producing equipment. There also are many different ways a foodservice worker can get burned.

Prevent Burns You can keep burns from happening. These safety tips can help keep you safe when you work in a professional kitchen:

- Tilt pot lids away from your body to let the steam escape.
- Use dry pot holders or oven mitts. Wet cloth forms scalding steam when it touches hot pots and pans.
- Turn pot and pan handles away from the front of the range.
- Step aside when you open an oven door to avoid the rush of heat.
- Get help to move large hot containers. This also can save strain on your back.
- Follow manufacturer's directions to operate hot beverage machines. Read the instruction manual before operating them.

- Be careful when you filter or change the oil in fryers. Always wear gloves and aprons for protection.
- Always wear appropriate safety clothing when you use chemicals for cleaning. Some of these chemicals can cause burns.
- Keep oven doors closed. This will also help food cook more quickly and evenly.
- Clean ovens when they have cooled. Otherwise, you may burn yourself.
- Keep cooking areas, vent hoods, and other surfaces grease free to prevent fires.
- Always keep paper, plastic, and other flammable materials away from hot cooking areas to prevent fires. **Flammable** materials are those that are quick to burn.
- Unplug electrical appliances with frayed cords to prevent burns and electrical shocks. Inform your supervisor of the problem immediately

Back Injuries and Strains

Back injuries from improper lifting and bending are one of the most common types of workplace injuries. Many back injuries could be prevented if employees take the proper precautions. For example, pushing and pulling puts less strain on your back than lifting.

Heavy Lifting Before lifting a heavy object, ask yourself these questions:

- Can I lift this object by myself?

Safety Check

✓ Use Ladders Safely

Follow these guidelines to use a ladder safely:

- Only one person should use a ladder at one time.
- Always face the ladder. Do not stand on the top step. Climb only on the step side.
- Stay centered on the ladder so you do not tip over to the side.
- Do not carry objects that could make you lose your balance.

CRITICAL THINKING *What do you think could happen if you carried a large box up a ladder?*

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- Is the object too heavy or too awkward to lift easily?
- Do I need help to move or lift the object?
- Is the path I must take free of clutter?

Follow these steps to safely lift heavy objects:

1. Bend at your knees.
2. Keep your back straight.
3. Keep your feet close to the object.
4. Center your body over the load.
5. Lift straight up and do not jerk your body.
6. Do not twist your body as you pick up or move the object.
7. Set the load down slowly. Keep your back straight.

Lifting tools can also be helpful. Use rollers under an object. A pulley or lever can help you move heavy objects more easily.



Kitchen Equipment Safety

Each kitchen is different in its design and the equipment used. You should be familiar with each piece of equipment before you operate it. If a piece of equipment is malfunctioning, be sure to follow the lockout/tagout procedure. **Lockout/tagout** means that all necessary switches on malfunctioning electrical equipment are tagged and locked from use.

Be familiar with equipment safety features, such as guards and safety devices. For example, a slicer has a hand guard that must be in place to operate the machine.

Cleaning and Maintenance

You will also need to clean and maintain equipment. Always follow these safety measures when you clean kitchen equipment:

- Turn all switches to the off position.
- Unplug the equipment.
- Follow the manufacturer's instructions and the food establishment's directions for cleaning.

Reading Check **Identify** What type of shoes should you wear to work in a kitchen?



Avoid Back Injuries If you decide to lift an object by yourself, it is important to use the correct lifting technique. *How is this employee using a correct lifting technique?*

Fire Safety

Fires in the workplace cause substantial property and equipment damage each year. They also cause injuries, and even death. The flames and high heat sources used in foodservice workplaces can cause fires. A burn can be a very serious injury. Burns can be prevented by preventing fires. Fires are classified according to the type of material that catches fire. (See **Figure 1.1 on page 8**.)

Fire Prevention

You can prevent and control fires. Practice good work habits and be prepared for emergencies. Keep the workplace clean, especially of built-up grease.

Here are some other tips to prevent fires and help keep your workplace safe:

- Be sure ashtray contents are completely out before you empty them into the trash.
- Be careful around gas appliances. Built-up gasses can explode if a match is lit nearby.

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FIGURE 1.1 Fire Extinguisher Types

Fire Safety The universal picture symbols shown here are found on fire extinguisher labels. *What information do these symbols tell you?*

Class of Fire	Type of Flammable Material	Type of Fire Extinguisher to Use
Class A	Wood, paper, cloth, plastic	Class A    
Class B	Grease, oil, chemicals	Class A:B    
Class C	Electrical cords, switches, wiring	Class A:C   
Class D	Combustible switches, wiring, metals, iron	Class B:C    Class D 
Class K	Fires in cooking appliances involving combustible vegetable or animal oils and fats	Class K 

- Store oily rags in closed metal containers so they do not start a fire.
- Make sure all smoke alarms work properly.
- Store flammable materials away from heat sources.
- Keep water away from electrical outlets.
- Clean the range and oven hoods and filters regularly to remove grease that can catch on fire.
- Keep all exits unlocked and accessible from the inside. Exits should also be clearly marked.

Fire Protection Equipment

Prevention is your best course of action when it comes to fires. But even with the right preventive steps, fires can still happen in a professional kitchen. It is essential to have the proper fire protection equipment on hand at all times.

Fire Extinguishers

Fire extinguishers are the most common type of fire protection equipment used in foodservice operations. The type, number, and location of fire extinguishers that are needed can vary. A fire extinguisher should be located within each work area.

Fire extinguishers use several types of chemicals to fight different kinds of fires. To fight a fire properly, you must use the right type, or class, of extinguisher.

Fire extinguishers are inspected and tagged on a regular basis. To use a fire extinguisher properly, hold the extinguisher upright and remove the safety pin. Point the nozzle at the bottom of the fire and push down the handle.

Hood and Sprinkler Systems

A hood system that is well vented can help remove excess smoke, heat, and vapors. Make sure hoods are cleaned regularly and are working

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properly. If your kitchen has a sprinkler system, keep products and supplies at the regulated distance from the sprinkler equipment.

Fire Emergency Procedures

Every foodservice business has fire emergency procedures. Employees must be familiar with these procedures. Employers must post fire exit signs in plain view above exits. Employees should know where to meet outside the business for a head count in case of a fire. They should also know how to direct customers out of the building.

It is the foodservice staff's responsibility to keep customers calm during emergencies. If you discover a fire, call the fire department right away, even if the fire is small. Fires can grow large very quickly. Then, communicate clearly and help customers and coworkers leave the building quickly and calmly.

Reading Check **Explain** What should you do if you discover a fire in the workplace?

Emergency Procedures

Fires are not the only emergencies that can happen in a kitchen. An **emergency** is a potentially life-threatening situation that usually occurs suddenly and unexpectedly. You must know how to respond and who to contact during an emergency.

Post the telephone numbers of emergency services, such as poison control and the health department, near the phone. You should also learn basic first aid and life-saving techniques. It is your responsibility to know your employer's emergency policies.

First Aid

The immediate response to an emergency often involves first aid. **First aid** involves assisting an injured person until professional medical help can be provided. The American Red Cross offers courses that teach hands-on information about first aid in the workplace.

dt03mb/E plus/Getty Images

Science à la Carte

Extinguish a Grease Fire

The best way to extinguish an oil or grease fire is to use sodium bicarbonate (NaHCO_3). Sodium bicarbonate is also called baking soda. When it is heated, baking soda breaks down and forms carbon dioxide gas (CO_2), which smothers the fire.

Procedure

Perform research to find out why carbon dioxide gas smothers a grease or oil fire. You can perform your research at the library or interview a firefighter at your local fire department.

Analysis

Create a poster to explain why carbon dioxide gas smothers a grease or oil fire, based on your research. Keep track of the sources you use, and turn them in to your teacher.



Fire Protection This professional kitchen has several pieces of fire protection equipment. *How might the sprinkler system be used?*

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FIGURE 1.2 Types of Burns

Bad Burns There are three types of burns, each one more severe than the last.

How would you treat a first-degree burn?

Types of Burns	Characteristics of Burns
First-Degree Burns	The skin becomes red, sensitive, and sometimes swollen. These are the least severe of all burns.
Second-Degree Burns	These burns cause deeper, painful damage, and blisters form on the skin. The blisters ooze and are painful.
Third-Degree Burns	The skin may be white and soft or black, charred, and leathery. Sometimes third-degree burns are not painful because the nerves in the skin have been destroyed. These are the worst kinds of burns. Third-degree burns must be treated immediately at a hospital.

Emergency Action Tips

These general action tips should be followed during an emergency. They do not replace the need to be trained in first aid!

- Check the scene and stay calm.
- Check the victim. Keep him or her comfortable and calm.
- Call the local emergency number for professional medical help.
- Use proper first aid techniques.
- Keep people who are not needed away from the victim.
- Complete an accident report. Write the victim's name, the date and time of the accident, the type of injury or illness, the treatment, and when help arrived.

First Aid for Burns

Any type of burn requires immediate treatment. (See **Figure 1.2**.) If you or someone in the workplace is burned, call your local emergency number for medical assistance.

Follow these general guidelines for minor burns until help arrives:

- Remove the source of the heat.
- Cool the burned skin to stop the burning. Apply cold water on the affected area for at least five minutes. Use water from a faucet

or soaked towels. Do not use ice or ice water. This can cause damage to the skin.

- Never apply ointments, sprays, antiseptics, or remedies to the burned skin unless instructed to do so by a medical professional.
- Bandage the burn as directed in your first aid manual.



Wound Care Apply pressure to a wound to stop any bleeding. *What other steps should be taken to treat a minor wound?*

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- Minimize the risk of shock. **Shock** is a serious medical condition in which not enough oxygen reaches tissues. Elevate the victim's feet over his or her head. Keep the victim from getting chilled or overheated. Have the victim rest.

First Aid for Wounds

There are four types of open wounds:

- An **abrasion** is a scrape or minor cut. A rug burn is an abrasion.
- A **laceration** (la-sə-'rā-shən) is a cut or tear in the skin that can be quite deep. A knife wound is a type of laceration.
- An **avulsion** (ə-vəl-shən) happens when a portion of the skin is partially or completely torn off. A severed finger is an avulsion.
- A **puncture wound** happens when the skin is pierced with a pointed object, such as an ice pick, making a deep hole in the skin. Puncture wounds can be deep.

Treat Minor Wounds Follow these guidelines to treat a person with a minor cut.

- Wear disposable gloves to protect yourself and the victim from infection.
- Clean the cut with soap water.
- Place sterile gauze over the cut.
- Apply direct pressure over the sterile gauze or bandage to stop any bleeding.
- If bleeding does not stop, raise the limb above the heart.

Treat Serious Wounds Call for emergency help. Then, follow these guidelines:

- Wear disposable gloves to protect yourself and the victim from infection.
- Control the bleeding by applying pressure with sterile gauze or a clean cloth towel. Do not waste time by washing the wound first. Elevate the area while applying pressure.
- Cover the wound with clean bandages.
- Wash your hands thoroughly after emergency help has arrived.

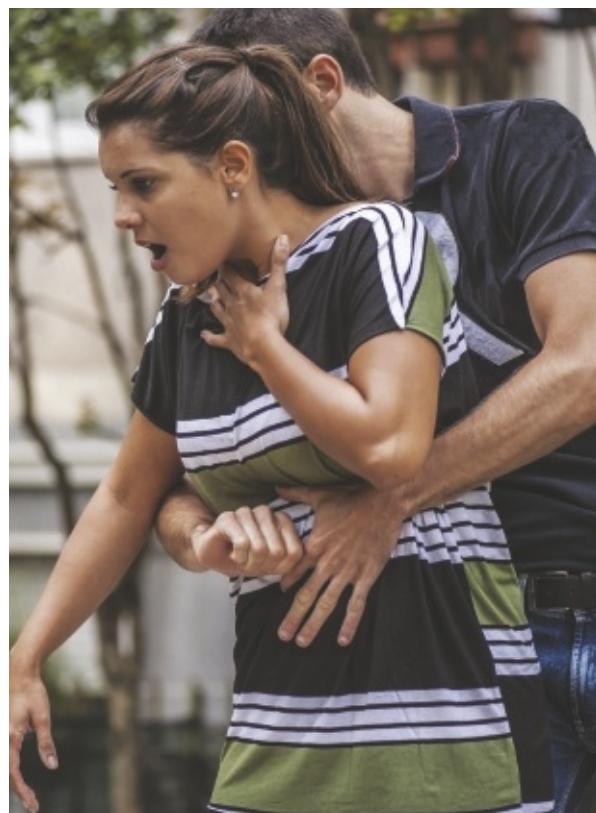
First Aid for Choking

Choking is often caused by food that blocks a person's airway. This will cause difficulty speaking and breathing.

The **Heimlich maneuver** is a series of thrusts to the abdomen that can help dislodge something that is stuck in a person's airway. You should be formally trained to use the Heimlich maneuver. Use it only on someone who is conscious and choking. You can even use it on yourself. Never perform the Heimlich maneuver on someone who is pregnant. This could harm the baby.

The basic Heimlich maneuver steps are:

- Stand behind the victim. Wrap your arms around the victim's waist. Locate the victim's navel.
- Make a fist with one hand. Place the thumb side of your fist against the middle of the abdomen just above the navel and below the bottom of the breast bone.
- Place your other hand on top of your fist.
- Press your hands to the victim's abdomen. Use inward and upward thrusts.
- Repeat this motion as many times as it takes to dislodge the object or food.



Heimlich Maneuver The Heimlich maneuver can be performed on a choking, conscious adult. *When would you not perform the Heimlich maneuver?*

CPR

CPR, or **cardiopulmonary resuscitation** (kär-dē-ō-pū-lmē-nē-ri-sō-sō-tā-shōn), is emergency care that is performed on people who are unresponsive. This includes those who are unconscious because of choking, cardiac arrest, stroke, or heart attack.

The sooner CPR is performed, the greater the victim's chance of survival. CPR helps keep oxygen flowing to the brain and heart. This is done until advanced care can have a chance to restore normal heart function. Contact your local chapter of the American Heart Association or the American Red Cross for training and information on how to perform cardiopulmonary resuscitation correctly.

reports can help prevent future emergencies. They also can help limit a restaurant's liability in the event of an accident. Make sure that the information in the report is accurate. Your supervisor may want to discuss the information with you.

A **general safety audit** is a review and inspection of all safety procedures and equipment. The audit should be managed by foodservice employers, but carried out by foodservice workers. It should be performed at least once a year. Let a supervisor know if you find any of the following:

- Missing or low-charge fire extinguishers
- Blocked hallways or exits
- Missing safety information
- Frayed electrical cords

Reports and Audits

As soon as possible after an emergency is over, you should **document**, or write down, the details of the emergency. Detailed emergency

Reading Check **Determine** How often should a general safety audit be performed?

SECTION 1.1

After You Read

Review Key Concepts

1. **Identify** four types of personal injuries that foodservice workers must help prevent.
2. **Explain** how to use a fire extinguisher properly.
3. **Describe** the three types of burns.

Practice Culinary Academics

English Language Arts

4. Choose one of the common sources of injury in the kitchen. Conduct research about the topic. Find an example of a situation where someone was injured in a professional kitchen setting. Write a short report to explain the injury, the cause of the injury, the consequences of the injury, and how the injury might have been prevented. Include your sources in your report, and turn them in to your teacher.

Mathematics

5. Hot water can be dangerous even before it begins to boil. A two-second exposure to water at a temperature of 150°F can cause a burn. What is this temperature in degrees Celsius?

Math Concept **Converting Temperatures** In the metric system, temperatures are measured in degrees Celsius. To convert temperatures from Fahrenheit (F) to Celsius (C), use this equation: $C = (F - 32) \times \frac{5}{9}$

Starting Hint To convert 150°F into a Celsius temperature, first subtract 32 from the Fahrenheit amount. Multiply the result by the fraction $\frac{5}{9}$. To do so, first multiply the result by 5, then divide that product by 9.

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Sanitation Challenges

Learn how to
keep food safe
to eat.

Before You Read

Predict Before starting the section, read headings, bold terms, and photo captions to browse the content. Think about how they can help you predict the information in the section.

Read to Learn

Key Concepts

- **Describe** the sources of food contamination.
- **Identify** sources of chemical food contamination.
- **Illustrate** how to manage pests in a kitchen setting.

Main Idea

Food becomes contaminated by exposure to harmful microorganisms or chemical substances. Insects and rodents can also physically contaminate food.

Graphic Organizer

There are three types of hazards that can cause contamination in a kitchen. Use this problem-solution chart to identify each type of hazard, and then list the sources of contamination for each type of hazard. Finally, provide solutions to prevent that contamination.

Problem	Sources	Solutions

Content Vocabulary

● sanitary	● pathogens
● contaminated	● bacteria
● direct	● viruses
contamination	● parasite
● cross-	● fungi
contamination	● mold
● sanitation	● cleaning
● hazard	● sanitizing
● toxin	

Academic Vocabulary

- result
- transmit

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Contamination Basics

Foodborne illnesses kill thousands of people each year and make many more people sick. For this reason, foodservice professionals need to know how to create a clean, safe, disease-free place that can be used for food preparation. They also need to know how to prevent and properly respond to foodborne illness outbreaks.

When consumers eat out, they expect the food to be prepared and served in a sanitary environment. **Sanitary** means clean. When harmful microorganisms or substances are present in food, the food is contaminated. **Contaminated** food is food that is unfit to be eaten. Eating contaminated food can make you sick and may even cause death.

Food can be directly contaminated or cross-contaminated:

- **Direct contamination** happens when raw foods, or the plants or animals from which they come, are exposed to harmful microorganisms. For example, harmful microorganisms found in soil that is used to grow grains could contaminate the grain and any products produced from the grain.
- **Cross-contamination** is the movement of harmful microorganisms from one place to another. People cause most cases of cross-contamination. For example, food handlers can transfer organisms or substances when they prepare or serve foods.

Foodservice workers must consider direct contamination and cross-contamination. They must practice proper sanitation techniques. The word **sanitation** means healthy or clean and whole. In the workplace, sanitation means healthy and sanitary conditions. Foodservice workers have a responsibility to prepare food in a sanitary environment. Federal, state, and local health departments have created regulations to protect consumers from foodborne diseases.

In the foodservice industry, workers need to know the different types of food hazards. A **hazard** is a source of danger. These hazards

are biological, chemical, and physical. Any of these hazards can **result**, or have an outcome, in contaminated food.

Biological Hazards

Biological hazards come from microorganisms such as bacteria. Other types of biological hazards include viruses, parasites, and fungi. Certain plants and fish can also carry harmful toxins. A **toxin** is a harmful organism or substance. However, disease-causing microorganisms called **pathogens** cause the majority of foodborne illnesses. For detailed information on specific foodborne illnesses, see **Figure 1.3** on page 15.

Foodborne Illness

Microorganisms can grow in and on food when it is not handled properly. Other conditions that can lead to foodborne illness outbreaks are cross-contamination, poor personal hygiene, and food handler illness. For example, uncooked meats that are stored above cooked meats in the refrigerator can cause cross-contamination because the uncooked meat may drip onto the cooked meat.

Each year the number of incidents of foodborne illness grows. Children, the elderly, and pregnant women have the highest risk to catch a foodborne illness. People who are chronically ill or who have weakened immune systems also are at risk. The good news is, conditions that cause foodborne illness can be prevented. Follow industry safety standards to help lower the threat of foodborne illness.

Bacteria Tiny, single-celled microorganisms are called **bacteria** (bak-tir-ē-ə). Some forms of bacteria can make people very sick if they are eaten. People who have a bacterial illness may have symptoms such as nausea, abdominal pain, and vomiting. Other symptoms include dizziness, chills, and headache.

Bacteria multiply very quickly under the right conditions. The acronym FATTOM can help you remember these conditions:

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✓ **FIGURE 1.3** Foodborne Illnesses

Food Contamination There are several forms of bacteria, viruses, and parasites that can cause customers to become sick. *How can you prevent foodborne illnesses?*

Illness—Cause	Symptoms	Foods Involved
Salmonellosis—Bacteria	Cramps, nausea, headache, fever, diarrhea, vomiting.	Poultry and poultry products, eggs, meat and meat products, fish, dairy products, protein foods, fresh produce.
Campylobacter jejuni—Bacteria	Nausea, vomiting, fever, diarrhea, abdominal pain, headache, and muscle pain	Meats and poultry, unpasteurized milk and dairy products
Hepatitis A—Virus	Fatigue, discomfort, fever, headache, nausea, loss of appetite, vomiting, jaundice	Water, ice, salads, cold cuts, sandwiches, shellfish, fruit, fruit juices, milk and milk products, vegetables
Norwalk—Virus	Cramps, nausea, headache, fever, vomiting	Water, raw vegetables, fresh fruit, salads, shellfish
Trichinosis—Parasite	Abdominal pain, nausea, diarrhea, fever, swelling around eyes, thirst, sweating, chills, fatigue, hemorrhaging	Pork, nonpork sausages, wild game
Shigellosis—Bacteria	Abdominal pain, diarrhea, vomiting, fever, dehydration	Protein salads, lettuce, raw vegetables, poultry, shrimp, milk and milk products
Listeriosis—Bacteria	Headache, fever, chills, nausea, vomiting, diarrhea, backache, meningitis, encephalitis	Ice cream, frozen yogurt, unpasteurized milk and cheese, raw vegetables, poultry, meat, seafood
Rotavirus—Virus	Abdominal pain, diarrhea, vomiting, mild fever	Water, ice, salads, fruit, hors d'oeuvres
Anisakiasis—Parasite	Tingling in throat, abdominal pain, coughing up worms, cramping, vomiting, nausea	Fish, seafood
Giardiasis—Parasite	Cramps, nausea, intestinal gas, fatigue, loss of weight	Water, ice, salads
Botulism—Bacteria	Constipation and diarrhea, vomiting, fatigue, vertigo, double vision, dry mouth, paralysis, death	Underprocessed foods, canned low-acid foods, sautéed onions in butter sauce, baked potatoes, untreated garlic and oil products
E. Coli—Bacteria	Severe abdominal cramps, diarrhea, vomiting, mild fever, kidney failure	Raw ground beef, undercooked meat, unpasteurized milk and apple cider or juice, mayonnaise, lettuce, melons, fish from contaminated water
Staphylococcus aureus—Bacteria	Nausea, vomiting, stomach cramps, diarrhea	Handmade items that do not require cooking, such as sliced meats, puddings, and sandwiches

- **F=Food** Bacteria need food for energy to grow.
- **A=Acidity** Bacteria generally do not grow well in acidic environments.
- **T=Temperature** Bacteria can thrive in temperatures between 40° F (4.4° C) to 140° F (60° C). Some bacteria can survive freezing and cooking.
- **T=Time** Although some bacteria multiply more quickly than others, it does take time for them to grow.
- **O=Oxygen** Many bacteria need oxygen to live. However, some bacteria do not need oxygen to grow.
- **M=Moisture** Bacteria prefer foods that are high in protein and moisture.

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Viruses Simple organisms that cause many food-related illnesses are called **viruses**. Viruses need a host, or another living cell, to grow. A host can be a person, animal, or plant. Once inside the host, the virus can multiply. Like bacteria, viruses can survive freezing and cooking. It is easy to **transmit**, or spread, viruses from person to person. They usually contaminate food when a foodservice worker uses poor hygiene. Poor hygiene may include sneezing on food or not washing your hands after going to the bathroom. Salads, sandwiches, milk, and other unheated foods are especially susceptible to viruses.

Parasites A **parasite** (‘pär-ə-sīt) is an organism that must live in or on a host to survive. Parasites are larger than bacteria and viruses. Parasites are often found in poultry, fish, and meats. Some common parasites found in food include protozoa, roundworms, and flatworms.

Parasites can be eliminated from food by following proper cooking methods. Freezing the food product for a number of days also



 **Bacterial Illness** Salmonella bacteria is one of the leading causes of foodborne illness. *How could you help prevent the spread of salmonella in a foodservice operation?*

can destroy parasites. Poultry, fish, and meat should be cooked until the minimum internal temperature is reached. These foods, when uncooked, should not come into contact with other foods. Carefully check the food in several different spots to be sure that the safe temperature has been reached throughout the food. If the parasites are not eliminated, they can infect anyone who eats the contaminated food.

Fungi Spore-producing organisms found in soil, plants, animals, water, and in the air are called **fungi** (fən-gī). Fungi also are naturally present in some foods. Some fungi can be large, such as mushrooms. Some fungi can be eaten, while others cannot. Eating some fungi can cause stomach problems, or even death.

Molds A **mold** is a form of fungus. The fuzzy-looking spores produced by molds can be seen with the naked eye. Molds can grow at nearly any temperature. Even if only part of a food has mold, the whole thing should be thrown away, although some cheeses can be saved.

Yeast Another form of fungus is yeast. Yeast is most often associated with bread and the baking process. In this case, yeast is helpful. However, if yeast is present in other foods, such as sauerkraut, honey, and jelly, it can cause those foods to spoil.

Sanitation Check

Hepatitis A

Hepatitis A is a disease that causes inflammation, or swelling, of the liver. Foodservice workers with the disease can transmit the virus to food. It also can be transmitted by contact with contaminated water, or eating shellfish that has been raised in contaminated water. The symptoms of hepatitis A are similar to the flu. Hepatitis A can be prevented. You should wash your hands thoroughly after restroom use. In addition, a vaccination for hepatitis A can help protect you from infection.

CRITICAL THINKING *If you get a hepatitis A vaccination, can you forgo hand-washing procedures? Why or why not?*

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A TASTE OF HISTORY

1941

Breakfast cereal Cheerios is introduced as CheerIOats by General Mills

1947

First two-door refrigerator/freezer is produced

Keep Food Cool

Until the early twentieth century, people in cities who needed ice to keep their food cold purchased ice from local ice houses. The ice houses stored ice that was collected in the winter months.

The first electric refrigerators were in use by the late 1800s, but there were no mass-produced modern refrigerators until after World War II. Today, foodservice operations can choose from a large variety of refrigerators to keep food cold and fresh.

History Application

The evolution of the refrigerator/freezer had a direct connection to the frozen food industry. Create a timeline about the frozen food industry that traces how the storage and shipping of frozen food has changed over time.



Forms of Fungus Mold is a type of fungus.

Why are some types of fungi safe to eat, but others are not?

Outbreak Response

If you have ever felt queasy several hours after eating, you may have been a victim of a foodborne illness. An outbreak of foodborne illness happens when several people become sick after eating the same food.

Any outbreak of foodborne illness must be reported to the local health department. If you think there has been an outbreak at your facility, a quick response is essential. An outbreak could cost the business thousands of dollars in legal fees, insurance costs, and loss of customers. It also could force the foodservice establishment out of business.

A laboratory analysis can tell which food made customers sick. In most areas, the public health department will investigate any outbreak of foodborne illness to protect public health. The department's job is to learn how the illness was spread and how its spread can be prevented in the future.

If you suspect a foodborne illness outbreak, take these steps:

- Tell the manager or supervisor of your suspicions immediately. It is your supervisor's responsibility to contact the appropriate authorities for an investigation.
- Avoid panic. There are many reasons why people become ill, so it is best to let the health authorities check the situation.
- Save any food you suspect may be contaminated. Wrap food in its original container or in a plastic bag. Clearly label the bag or container Do Not Use.

Reading Check **Define** What is the difference between direct contamination and cross-contamination?

Chemical Hazards

Chemical hazards include cleaning supplies, pesticides, food additives, and metals.

To help prevent chemical accidents, Material Safety Data Sheets (MSDS) must be kept on file. A material safety data sheet is a form that shows information about a substance and how to use it safely. The Occupational Safety and Health Administration's Right to Know law requires that employers post information about dangerous substances in the workplace and how to work with them safely.

- **Degreasers** Solvent cleaners used on range hoods, oven doors, and backsplashes to remove grease.
- **Abrasive Cleaners** Used to scrub off dirt or grime that can be difficult to remove. Abrasive cleaners are used on floors and pots and pans to remove burned-on food.
- **Acid Cleaners** Used to remove mineral deposits in equipment such as dishwashers and steam tables. However, acid cleaners should not be used on aluminum. They can eat through the metal. Follow product directions and use with care.

To avoid possible contamination, each cleaning product should be used and stored properly. Cleaning products should not be stored near food. The storage area should be kept neat and well organized to avoid confusion or spills.

Cleaning products should always be kept in their original labeled containers. Confusing a cleaning product with a cooking ingredient can cause illness, or even death. Check the labels to make sure you know how to use each product safely. Follow directions to dilute them properly. Labels usually have antidotes for accidental swallowing, and signal words such as caution, warning, danger, and poison. Report any unlabeled products to a supervisor.

You must follow local regulations to throw away cleaning products. Local health departments should have suggestions for environmentally friendly disposal.

Sanitation Check



Personal Hygiene

Foodservice professionals must have excellent personal hygiene. Microorganisms can spread from tools, equipment, and cooking surfaces to food on the hands of foodservice workers. This can lead to food contamination, disease, or food poisoning. To lower the chance of spreading microorganisms in the kitchen, you should:

- Use proper hand-washing techniques.
- Practice good grooming and cleanliness.
- Wear gloves and other protective clothing when required.
- Maintain good health and stay home when you are sick.
- Immediately report any illnesses or injuries to your supervisor.

CRITICAL THINKING How does good grooming prevent contamination?

Kitchen Cleanliness

Keep the facilities clean and sanitary to help lower the risk of contamination. **Cleaning** means removing food and other soil from a surface. You should always clean as you work. Do not wait until all the work is done before cleaning or sanitizing. **Sanitizing** ('sa-nē-tiz-ir) means reducing the number of microorganisms on the surface. You must do both to eliminate contamination.

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Industrial Cleaning

Cleaning products are vital to a foodservice business's operation.

How do you think industrial cleaning products differ from those used at home?

Cleaning and Sanitizing

Everything in a foodservice operation should be kept clean and sanitary at all times. All pots, pans, and dishes, and all food contact surfaces, should be thoroughly cleaned each time they are used. For example, clean and sanitize a work surface before you use it to prepare another food product. Clean and sanitize tools at four-hour intervals. You should also clean them if they become contaminated by another food product.

In addition, you can use color-coded cutting boards and containers for each type of food product. This can help prevent cross-contamination. For example, you might use a green cutting board to cut raw vegetables. But you would never use that same cutting board to cut raw meat or chicken. Raw meat and chicken are more likely to carry bacteria that can cause illness if transferred to foods that will be eaten raw. You should take extra care with these foods. Be sure to sanitize all cutting boards thoroughly.

Kitchen tools and surfaces should be cleaned and sanitized with soapy hot water and a sanitizer. Notice the warning labels associated with using that product.

Pesticides

There are many pesticides ('pes-tə-sīds) that are used in food storage and preparation areas to control pests like bugs or rats. If they are used carelessly or in large amounts, pesticides may contaminate food. Pesticides can make people who eat the contaminated food very sick. They can even cause death in large amounts.

Pesticides must be used according to directions. They should be stored away from food and in a locked or secure area. Be sure all pesticides are labeled correctly. They should always be kept in their original containers. Some jurisdictions require a special permit to use pesticides, while others do not allow their use.

Empty pesticide containers should never be reused for any purpose. Because pesticides are hazardous materials, they cannot just be thrown away. Check local regulations for disposing of hazardous waste before you throw away pesticides or pesticide containers.

Reading Check Summarize What are the potential dangers of using pesticides in a commercial kitchen?

Physical Hazards

Physical hazards are caused by particles, such as glass chips, metal shavings, hair, bits of wood, or other foreign matter, that could get into food. Some physical hazards are found in food itself, such as bone shards or chips. However, most contamination occurs when foodhandlers do not follow proper safety and sanitation practices. Always use care when you prepare, cook, and serve food.

Pest Management

Wherever there is food, there may be insects and rodents. These pests can pose a serious threat to the safety of food products. Flies, roaches, and mice, for example, can carry harmful bacteria and spread disease. Once a facility is infested, it can be difficult to get rid of all pests. It is very important to create an effective pest management program.

Most pests need water, food, and shelter. A clean and sanitary environment is not attractive to most pests. Pests seek out damp, dark, and dirty places. Make sure garbage is disposed of quickly and in the appropriate containers.

To help keep pests out of storage areas:

- Keep storage areas clean, sanitary, and dry.
- Dispose of any garbage quickly.
- Keep food stored at least 6 in. (15 cm) off the floor and 6 in. (15 cm) away from walls.
- Remove as many items as possible from cardboard boxes before you store them.
- Maintain appropriate temperatures in storage areas.

A workplace may become infested even if you carefully follow a good pest management program. If you see signs of insects or rodents, report the problem to your supervisor. The supervisor can call a professional exterminator.

Reading Check **Explain** What do pests need to live?

SECTION 1.2 After You Read

Review Key Concepts

1. **Describe** the biological sources of food contamination.
2. **Identify** cleaning products commonly used in the foodservice industry.
3. **Explain** what to do if you suspect the workplace has become infested with pests.

Practice Culinary Academics

Science

4. **Procedure** Slice three pieces of bread in half, and expose each half to different conditions: 1) one dry and one wet; 2) one in the dark and one in the light; 3) one cold and one warm. Examine them every day for a week. Record any changes.

Analysis Based on observation, what is the best way to store bread? Write a paragraph to explain.

Mathematics

5. You are asked to make a batch of sanitizing solution by combining 4 gallons (512 ounces) of water with $\frac{1}{2}$ ounce of liquid bleach. What is the ratio of bleach to water in this solution?

Math Concept **Forming Ratios** A ratio is a comparison of two quantities, and is typically written as a fraction. Like other fractions, a ratio should be reduced to its lowest terms.

Starting Hint Write a fraction with the amount of bleach ($\frac{1}{2}$ ounce) as the numerator and the amount of water (512 ounces) as the denominator. Reduce the fraction to its lowest terms by dividing the numerator and denominator by their greatest common factor.

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Chapter Summary

Safety rules and equipment help keep foodservice workers safe. Use caution around gas appliances, store oily rags properly, and keep the workplace free of built-up grease to avoid fire danger. Employees should know first aid to treat emergencies, including CPR and the Heimlich maneuver.

Harmful microorganisms that cause illness can contaminate food. There are three types of hazards in the kitchen: biological, chemical, and physical. If an outbreak of foodborne illness occurs, follow company procedures and report it to your supervisor. Use cleaning products carefully, and according to directions.

Content and Academic Vocabulary Review

1. Use each of these vocabulary words in a sentence.

Content Vocabulary

- occupational back support (p. 4)
- flammable (p. 6)
- lockout/tagout (p. 7)
- emergency (p. 9)
- first aid (p. 9)
- shock (p. 11)
- abrasion (p. 11)
- laceration (p. 11)
- avulsion (p. 11)
- puncture wound (p. 11)
- Heimlich maneuver (p. 11)

- cardiopulmonary resuscitation (CPR) (p. 12)
- general safety audit (p. 12)
- sanitary (p. 14)
- contaminated (p. 14)
- direct contamination (p. 14)
- cross-contamination (p. 14)
- sanitation (p. 14)
- hazard (p. 14)
- toxin (p. 14)
- pathogens (p. 14)
- bacteria (p. 14)

- viruses (p. 16)
- parasite (p. 16)
- fungi (p. 16)
- mold (p. 16)
- cleaning (p. 18)
- sanitizing (p. 18)

Academic Vocabulary

- routine (p. 4)
- document (p. 12)
- result (p. 14)
- transmit (p. 16)

Review Key Concepts

2. **Identify** possible culinary workplace safety issues.
3. **Explain** fire safety equipment and emergency procedures.
4. **Describe** first aid measures for burns, wounds, and choking.
5. **Describe** the sources of food contamination.
6. **Identify** sources of chemical food contamination.
7. **Illustrate** how to manage pests in a kitchen setting.

Critical Thinking

8. **Consider:** Why are the type of shoes you wear in a kitchen important? What are the possible consequences of wearing inappropriate footwear in a kitchen?
9. **Analyze** response times. If foodborne illness breaks out at a restaurant, why are a quick response and notification of the local health department important?
10. **Suggest** outbreak solutions. Find a newspaper article about a foodborne illness outbreak. What methods would you suggest to help prevent a similar outbreak?

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Academic Skills

English Language Arts

11. Kitchen Safety Training Imagine that you are responsible for training new kitchen employees in a restaurant. Write an outline for a five-minute oral presentation that you would give to employees on their first day on the job to teach them the kitchen safety procedures of your restaurant. Create any visual aids you believe would be helpful in training new employees. Give your presentation to the class and give your presentation outline to your teacher.

Science

12. Hand Washing It is vital to have clean hands.

Procedure Form into groups as directed by your teacher. Have two group members cover their hands with washable paint. Then, wash off the paint, with one student using water only, and the other using soap and water.

Analysis Record how long it takes to wash off all of the paint using both methods. Create a procedure based on your results. Explain how it can be used at work and at home.

Mathematics

13. Cleaning Product Proportions One common method for cleaning surfaces that can hold on to grease, such as countertops, is to use a solution of 3 tablespoons of vinegar and 1 gallon of water. You have been asked to make up a larger batch of this cleaning solution for use in your restaurant kitchen. How much vinegar should you add to 2.5 gallons of water so that the final solution has the same proportion of ingredients as the one described above?

Math Concept **Using Ratios to Solve for an Unknown** When proportions are equal, you can set up two equal ratios to relate what you already know to what you are solving for. Use x to represent the unknown amount in the second ratio.

Starting Hint Write two fractions representing the ratio of tablespoons of vinegar to gallons of water: first, using the original quantities (3/1), and second, representing the larger batch ($x/2.5$). Because the larger batch has the same proportions as the original formula, the two ratios are equal: $3/1 = x/2.5$. Solve for x by multiplying both sides of the equation by 2.5.

Certification Prep

Directions Read the questions. Then, read the answer choices and choose the best possible answer for each.

14. Which of the following is a virus?

- salmonella
- listeriosis
- hepatitis A
- trichinosis

15. If you feel ill and have flu-like symptoms, you should:

- Go to work and warn your co-workers to be careful around you.
- Call your boss and tell him or her that you are sick.
- Take medicine for your symptoms and go to work.
- Do not tell anyone and continue to work.

Sharpen your test-taking skills to improve your kitchen certification program score.

Test-Taking Tip

In a multiple-choice test, the answers should be specific and precise. Read the question first, and then read all the answer choices. Eliminate answers that you know are incorrect.

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Real-World Skills and Applications

Management Skills

16. Design a Foodborne Illness Plan Imagine that you are the manager of a restaurant, and that recent outbreaks of foodborne illness around the country have you concerned. Design a system to document, investigate, and report incidents of foodborne illness. Write out a description of your plan.

Critical Thinking Skills

17. Use Detergents Effectively Split up into groups as directed by your teacher. Place two small spots of kitchen grease on a counter surface. Use a small amount of detergent and try to remove the first grease spot. Then, dilute the detergent with water and try to remove the second grease spot. Write a description of the results, and your group's observations on using detergent.

Financial Literacy

18. Purchase an Emergency Kit You have been given \$500 to create an emergency kit for your restaurant. You may spend no more than 25% of your budget on a fire extinguisher. How much money do you have to spend on the fire extinguisher, and how much for other supplies?

Technology Applications

19. Create a Disaster Plan Imagine that you own a banquet facility. Your facility employs a host, servers, dishwashers, cooks, and an executive chef. Use a word-processing program to create a poster to show plans to deal with the following emergencies: a fire in the kitchen, a minor cut, and a customer having a heart attack. Include responsibilities for the employees, a general procedure, and key locations for emergency procedures.

Culinary Lab

Develop a Safety Manual

20. Create a Manual In this culinary lab activity, you will work as part of a team to create a complete safety manual for a foodservice operation.

A. Plan the contents. Your manual should include the following information:

- Table of contents
- Short paragraph on the importance of workplace safety
- How OSHA and the EPA ensure workplace safety
- Employer and employee workplace safety responsibilities
- Kitchen safety guidelines
- First aid guidelines and a list of local emergency numbers
- Cross-contamination prevention guidelines
- Safe cleaning supply, chemical, and pesticide disposal
- Protective clothing checklist
- Personal hygiene tips

B. Prepare your manual. Discuss how you can present each item in your manual, and assign topics to each team member to research.

C. Conduct research. First, review the material in the chapter for information. Then, conduct additional research in your school library or on the Internet. Select pictures to include in your manual to illustrate the topics.

D. Write the manual. As a team, put together the results of your research in a word processing document. Insert the information and pictures in the proper order.

E. Share your work. Share your team's safety manual with the class and display it in the classroom.

Use the culinary skills you have learned in this chapter.

Create Your Evaluation

Create a sheet that contains the following categories: Completeness, Organization, Appearance, Writing Quality, and Clarity. Rate the manuals from 1 to 10 for each of the qualities. Provide a short summary of what each manual did well, and how each could be improved.

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Becoming a Culinary Professional

SECTIONS

- 4.1 Employability Skills
- 4.2 Seeking Employment
- 4.3 On the Job

WRITING ACTIVITY

Cover Letter

Choose a job in the foodservice industry that you believe you are qualified for and write a cover letter as if you were applying for that job. Use proper grammar and punctuation, and explain why you are qualified for the position.

Writing Tips

- 1 Explain your employment goal clearly.
- 2 Edit carefully for spelling and punctuation mistakes.
- 3 Reflect your attitude and communication skills.

EXPLORE THE PHOTO

Working in the foodservice industry requires many skills. *What are some other skills a chef must have besides cooking skills?*



Javier Larrea/Pictal/AGE Fotostock

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SECTION 4.1

Employability Skills

Reading Guide

Before You Read

Preview Read the Key Concepts. Write one or two sentences predicting what the section will be about.

Develop the skills you will need for success in the foodservice industry.

Read to Learn

Key Concepts

- **Demonstrate** basic employability skills in foodservice.
- **Evaluate** the characteristics of a positive work ethic.
- **Identify** the leadership skills necessary for foodservice employment.

Main Idea

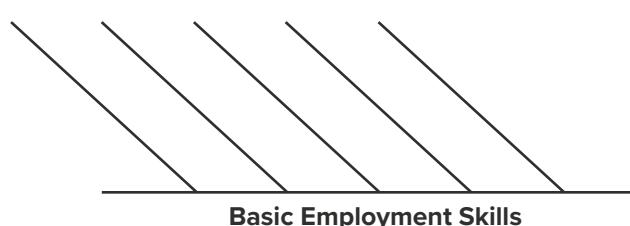
To be employed in the foodservice industry, you must draw on skills that help you find and keep a job.

Content Vocabulary

● calculate	● honesty
● make change	● reliable
● active listening	● teamwork
● distraction	● commitment
● work ethic	● leadership
● responsibility	● resource
● flexibility	● prioritize

Academic Vocabulary

- quality
- compensate



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Sharpen Your Basic Skills

Congratulations! You have decided to pursue a career in foodservice! Whether you see yourself as a pastry chef or a restaurant manager, your next step is to make your goal a reality. The skills you will need to have to find and keep a job in foodservice are the same skills that you need to find and keep a job in any other field. You may already have many of these basic skills. However, you may need to work on certain skills. This section will help you polish the abilities you have and develop the skills you need to be successful in the foodservice industry.

Imagine that you are a foodservice employer looking to fill a job. What skills would you look for in a new employee? What attitude would you look for in an employee? The skills and attitude you want would depend on the job you were trying to fill. You might look for someone with a particular type of education, training, and work experience. For example, you would want a dining room manager to have experience managing facilities and employees.

Beyond any foodservice knowledge and experience, however, every employer expects you to have certain basic skills. To work toward a successful career in foodservice, improve your basic skills. These skills include the ability to calculate, communicate, think, negotiate, and work as a member of a team. Basic skills will help you get the knowledge and experience you will need for your career. They will also help you make a good impression during a job interview. First impressions are very important because they can last for a long time.

Math Skills

The ability to calculate and perform other math skills is a basic part of every foodservice job. To **calculate** means to work with numbers. You will add, subtract, multiply, and divide numbers in a foodservice career.

For example:

- Cooks, chefs, and bakers must use math skills to adjust recipe yields, weigh ingredients, and adjust cooking times and temperatures for different foods.
- Servers use math skills to calculate customers' bills, calculate sales tax, make change, and keep track of tips.
- Foodservice managers use math skills to order supplies, schedule deliveries, set up employee work schedules, complete payroll and tax forms, set portion sizes, and estimate profits for the business.
- All foodservice employees use basic math skills to keep track of their work hours and pay rates.

Some situations where math skills are used include weighing and measuring, working with percentages, and making change.

Weighing and Measuring

Ingredients must be accurately weighed and measured for recipes. This ensures that the food will be of a high quality. It also ensures that the recipe will turn out the same way every time it is made. You will also need to understand simple fractions to read and follow most recipes. Fractions may need to be multiplied or divided for recipes as well. They also may need to be converted to percentages like these:

$$\frac{1}{4} = .25 = 25\% \quad \frac{1}{3} = .33 = 33\%$$

$$\frac{1}{2} = .50 = 50\% \quad \frac{2}{3} = .66 = 66\%$$

$$\frac{3}{4} = .75 = 75\%$$

Working with Percentages

Foodservice workers must often work with percentages in recipes. For example, a recipe might read, "The fat should make up 40% of the dough." To make the recipe, you must know how to calculate using percentages. Percentages are also used to calculate the sales tax on the cost of a food item or a meal. A tax of 8%, for example, means adding 8 cents for every dollar to the total bill. Converting the percent to a decimal may make working with percentages easier.

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Making Change

Servers, cashiers, and hosts need to know how to make change for customers. To **make change** means to count back the correct amount of change to a customer from the money he or she has paid for a check. This means you must be able to use math skills without using a pencil and paper. When making change at a table or cash register that does not automatically calculate the change amount for you, count up from the total of the check to the amount of money the customer gave you. Begin with the smallest coin and count up to the largest bill. For example, imagine that a customer pays for a \$15.25 check with a \$20 bill. You would count back the change of \$4.75 as, "Seventy-five cents makes \$16, and four dollar bills make \$20."

When using a point-of-sale computer system that shows the amount of change that is due to the customer, count out the change from the largest bill to the smallest coin. For example, the \$4.75 change from the example above would be counted back to the customer as, "Four dollars and seventy-five cents."

Listening and Speaking Skills

You will be listening and speaking almost constantly while at work. The kinds of listening and speaking skills you will need as part of a foodservice job are meant to help promote understanding. Listening does not mean that you simply appear to hear what is being said by a customer or a coworker. Listening means hearing the message and then responding to it in an appropriate way. To listen properly, you need to avoid distractions.

Active Listening

Whether you take a customer's order in a restaurant or carry out a chef's instructions, you will need to practice active listening. **Active listening** is the skill of paying attention and interacting with the speaker. Active listening shows that you have understood what a speaker has said.

These are the key steps in active listening.

Practice them to become a good listener:

- Think about the purpose of the message. Why are you listening?
- Show your understanding of the message with eye contact and body language, such as nodding your head.
- Ask the speaker questions to help clarify points of the message that you do not understand.
- Listen for the speaker's inflections. Inflections are the rising and falling tones of the voice that communicate emotional content. For example, a speaker's tone usually rises when he or she is angry.
- Look at the speaker's body language. What is he or she saying with posture, gestures, and facial expressions?
- Select the most important points of the message as you listen.
- Take notes on the message. This is especially important if you are on the telephone.
- Listen for the end of the message.

Try to avoid distractions when you listen. A **distraction** is something that turns your attention away from the speaker and toward something else. Focus on what is being said. Even if you disagree with the speaker, listen carefully. Do not let your feelings about the speaker get in the way of your understanding of the message. Wait until the speaker has finished before you respond. Think carefully about how you will respond before you respond.

Speaking Skills

How well you are understood depends on how clearly you speak. These tips can help you to speak more clearly:

Pronounce Words Clearly and Correctly If you are unsure of how to pronounce a word or a name, check a dictionary or ask someone. Apologize if you are incorrect. Speak each syllable of a word. Do not slur your words together or drop the endings of words. This will make it difficult for people to understand what you are saying.

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Do Not Use Slang Slang is not appropriate for use in the workplace.

Speak at a Medium Pace Your message will be missed by your listener if you speak too quickly. Your listener may also become distracted if you speak too slowly. You must speak at a medium pace for most people to understand you. If you are not sure, ask your listener if he or she understands what you are saying. If not, repeat yourself.

Regulate Your Volume If you speak too softly, people will not hear you. If you speak too loudly, you will annoy your listeners and distract others.

Telephone Skills

When you use the telephone, speak calmly, clearly, and at a medium volume. Even though you cannot be seen, smile while you speak. The person on the other end of the phone can sense your mood and attitude.

✓ **Phone Communication** Using the telephone correctly is an important communication skill. *Why is it important to have good manners when you speak over the phone?*



Your voice on the telephone may be a customer's first or only impression of your business. You should be polite and helpful at all times.

Follow these steps to properly answer a telephone in a foodservice business:

- Thank the caller for calling. Say “Good morning,” “Good afternoon,” or “Good evening,” depending on the time of day. Identify the name of the business, and give your name.
- Ask the caller, “How may I help you?”
- If the call is for another employee, take a message or route the call to the correct person, depending on the restaurant’s policy.
- If the call is for another customer, place the caller on hold and find the customer.
- If the call is for a request for a special occasion, such as a birthday or anniversary, write down the information and give it to the appropriate person.
- If the call is from someone wanting to make a reservation to eat, check to make sure the date is available. Then, enter the date into the reservations book. Write down other information, such as the customer’s name, the number of people who will eat, any special requests, such as seating or dietary needs, and whether they prefer a smoking or non-smoking section. Offer any special information to the caller, such as the restaurant’s dress code. Confirm the reservation information with the customer. Ask the customer to check in when he or she arrives at the restaurant, and thank the caller for calling.

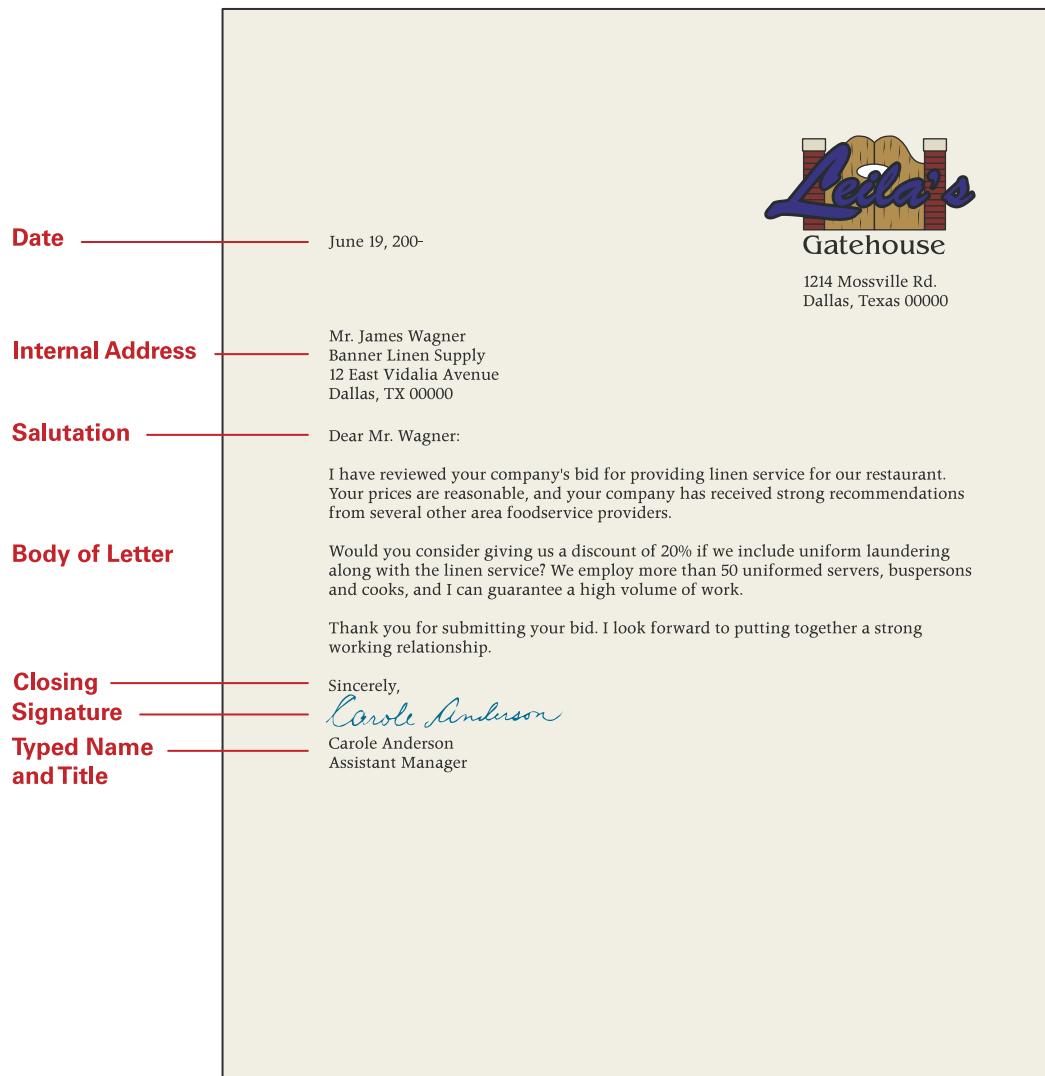
Body Language

You can also speak without saying a word. Body language, or how you physically respond, also speaks for you. The way you sit, stand, move your hands, look, and smile or frown sends a clear message to the listener. Be aware of the body language you use as you speak to customers, coworkers, and supervisors. For example, if you stand with your arms folded across your chest, you may signal that you are not listening to the speaker.

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FIGURE 4.1 Business Letters

Letter-Writing Skills Follow grammar and punctuation rules when you write business letters. *To whom might you write letters as a foodservice worker?*



Writing Skills

Your ability to communicate in writing will help you find a job and perform well on the job. You will need to use writing skills every day on the job for business letters, work orders, menus, and more. Your writing skills will improve if you pay attention to your writing and reading skills. When you must write on the job, think about:

- **Your Audience** Before you write, picture the person or group who will be reading it. Tailor your writing to the reader's needs.

- **Your Purpose** Choose language that matches the purpose of your writing. Read what you have written and decide if your writing fulfills its purpose. Most business communications give information or instructions, ask for information or a decision, persuade a reader to agree with or act upon something, or to complain.
- **Style** The style of your communication includes your choice of language and tone. Business communications are written in a direct style with a professional tone.

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- **Form** The two most common forms of business writing are memos and business letters. (See **Figure 4.1** on page 87 for an example of a well-written business letter.) Follow basic grammar and punctuation rules when you write. Be sure to use the spell check and grammar check features on the computer to check your writing. It is also a good idea to have someone else proofread your letters before you send them. Your writing style forms a first impression of you and your business for the person reading it.

Reading Skills

Reading is an important skill both on and off the job. Much of the information you receive from the world around you comes through reading. In foodservice, you will use reading skills every day to:

- Prepare food by reading ingredient labels and recipes or formulas.
- Operate foodservice equipment by reading instruction manuals and safety precautions.
- Serve customers by reading menus and specials lists.
- Carry out general job responsibilities by reading workplace policies and communications.

To read well, you will need to develop good reading skills. You will use these basic reading skills on the job:

- **Preview** Before you read anything, read any headlines and subheads to get an overview. This will give you an idea of the topics that are to come.
- **Skim** Always look for key points when you read. This is called skimming.
- **Focus** After you have previewed or skimmed material, give your full attention to what you read. Think about what you are reading. See if you can answer questions that you have as you read.

~ Small Bites ~

Thinking Skills Foodservice employees also need analytical thinking skills. Decision-making skills are necessary to successfully face new situations. Critical thinking and problem solving skills will help you to respond to accidents and prevent emergencies.

- **Visualize** If the text is not illustrated, imagine a set of pictures or charts that would accompany what you read. This will help you understand the content.
- **Check** Ask yourself how well you understand what you read. If there are words you do not understand, look them up in a dictionary.

Reading Check **Give Examples** What are some ways in which cooks use math skills?

Work Ethic

In addition to basic skills, employers look for certain key **qualities**, or distinguishing characteristics, in their employees. A person who has these qualities usually has a strong work ethic. A **work ethic** is a personal commitment to doing your very best as part of the team. Employees who have a good work ethic are often successful in their careers. With practice, you can develop the qualities that help create a strong work ethic.

Responsibility

Being responsible is one of the most important qualities you can have for success in any job. **Responsibility** is your ability to be aware of what a particular situation demands of you. Responsible employees show up for work on time and work diligently to become familiar with job duties and do them correctly. When you are responsible, you accept the consequences of your choices and actions instead of blaming others for any mistakes you make.

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Flexibility

In today's rapidly changing work environment, flexibility is very important. **Flexibility** is the ability to adapt willingly to changing circumstances. Being flexible means that you adjust to changes without complaining. It also means that you are willing to learn new techniques and skills. You will find it easier to be flexible if you are confident in your skills.

Honesty

Honesty is another important part of a strong work ethic. You practice **honesty** on the job when you are truthful and loyal in your words and actions. For example, if you make a mistake on the job, do not cover it up or blame someone else. Instead, admit to your mistake and find out how to prevent making the same mistake in the future. This quality is always appreciated by employers.

Reliability

Reliability (ri-lī-ə-bi-lē-tē) is an extension of responsibility. You are **reliable** when other people can count on you to do what you say that you will do. When you show reliability on the job, you help the business to succeed.

Reliable people are more likely to advance on the job. A reliable employee is someone who:

- Arrives at work on time.
- Keeps personal matters separate from business matters.
- Works a full shift.
- Carries out a variety of assigned tasks without constant prompting.
- Takes on extra work when necessary without complaint.
- Gets enough rest to work effectively.
- Maintains good personal physical and mental health.

Teamwork

As a foodservice worker, you will often be part of a large team. A winning team, however, is more than just a collection of talented people. If you have ever played a team sport, you know how important it is that every member participates, no matter what their skill level is. When you learn to effectively communicate, resolve conflicts, and develop negotiation skills, it is called **teamwork**. A star player must support his or her teammates throughout the game. You can practice teamwork on the job when you work to support the efforts of your coworkers.



Work Together

Teamwork is part of every job.

How might you demonstrate teamwork in a foodservice setting?

Commitment

Commitment is the dedication that you show to doing something. Commitment is the quality that supports all your abilities and skills to build a strong work ethic. Demonstrating commitment will set you apart as a valuable employee. You show a commitment to excellence when you display good business etiquette and always do your best.

Quality

A commitment to quality means that you always do work you are proud of. In foodservice, a commitment to quality means that you use quality ingredients, prepare and serve them in the most pleasing way and you serve customers to the best of your ability. You strive for the highest standards.

Excellence

Employees who are committed to excellence strive to do their very best at all times, no matter what job they are doing. They make the most of opportunities to improve their abilities and learn new skills. People who are committed to excellence are not willing to settle for work that is simply good enough.

Reading Check Explain What does it mean to have a commitment to quality?

Leadership Skills

Besides basic skills and a strong work ethic, employers also look for employees who have leadership skills. **Leadership** is the ability to motivate others to cooperate in doing a common task. Leadership is a quality every employee should practice.

Leadership Organizations

You do not need to wait until you are employed to develop leadership skills. Many organizations and programs help students develop leadership skills. Two such organizations are FCCLA and SkillsUSA.

Family, Career and Community Leaders of America (FCCLA)

FCCLA is a national organization of middle and high school students who take family and consumer sciences courses. FCCLA activities and skill events provide opportunities to develop leadership skills. One FCCLA program, Leaders at Work, is for students who work in food production and services or hospitality and tourism. Students can create projects to strengthen their communication, interpersonal, management, and entrepreneurship skills.

Students also can participate in challenging competitions such as the STAR (Students Taking Action with Recognition) events. Members may compete in areas such as culinary arts, entrepreneurship, and interpersonal communications.

SkillsUSA

SkillsUSA is a national organization of high school and college students who are enrolled in training programs for technical, skilled, and service occupations. SkillsUSA programs team up students with industry professionals to provide the SkillsUSA Championships.

Foodservice students can compete in contests for culinary arts and commercial baking. Students are judged on technical

skills, sanitation and food safety practices, food quality, and their creative presentation. Students can also compete in food and beverage service. Competitors demonstrate skills in table setting, greeting guests, taking reservations, menu presentations, and meal service.

Professional Organizations

Professional foodservice organizations can help foodservice employees sharpen their skills. Employees can also learn about new foodservice trends. Many professional organizations sponsor conventions and classes. There are organizations for all parts of the foodservice industry, including cooking, baking, and management. Some professional organizations include:

- International Association of Culinary Professionals
- American Culinary Federation
- American Institute of Baking
- National Restaurant Association
- U.S. Pastry Alliance
- Research Chefs Association

Use Resources Effectively

A **resource** is a raw material with which you do your work. It is up to you to make the best use of these resources and to avoid wasting them. The key resources are time, energy, money, things, and people.

You can use time effectively if you perform activities quickly and carefully. You can also learn to **prioritize**, or put things in order of importance. The world of food service is fast-paced. Time is your most limited resource. It is important to use your time well.

Use personal energy resources effectively. Get the right amount of rest, nutrition, and health care to do your job well.

Whenever you do a job that costs or earns money for your employer, you have an opportunity to practice leadership. If you are responsible for making purchases, look for good value for the money. If you receive money in payment, be careful and honest.

The materials, equipment, and tools used during your job are resources. Use supplies properly and carefully. Immediately report any damage to equipment and supplies. Always take care of your uniform, tools, supplies, and work area.

The foodservice industry has rushed service times preceded by slower preparation periods. You waste people resources when you perform your job so poorly that someone else has to redo the work.

Use Information Effectively

Information comes at you from countless sources. On the job, you will need to gather, use, and share information. You will also need to decide which resources are best for the job you must do.

Gather Information

Information that is useful for your job is everywhere. You can get information from newspaper headlines, radio and TV news bulletins, and the Internet. Learn the difference between useful information and idle chatter, false statements, and misleading opinions. Be careful when you gather information from the Internet. Some Web sites contain false information. Reliable information comes from known sources, such as government agencies or businesses.

Use and Share Information

Information by itself is worthless until you use it. You show leadership when you can gather, understand, evaluate and use information in a way that benefits your business and does not harm others.

Do not keep important information to yourself. The whole team benefits when you share knowledge that you have learned. Effective leaders share information with their team members and with other managers. They also recognize the difference between sharing useful information and spreading negative information, such as gossip, that can hurt others.

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Use Technology Effectively

You will encounter and use computer technology in foodservice. However, technology is a resource. It is not a replacement for a skilled employee. You can learn to use technology effectively as a resource. This can mean knowing how to operate a point-of-sales computer system or an entire automated production line. The technology you will operate depends on your job. All kinds of cooking equipment, such as thermometers and convection ovens, use improved technology.

Here are some tips to keep in mind:

- **Apply Basic Computer Skills** You can adapt your knowledge of standard computer software to use foodservice computer technology. Computer use ranges from entering restaurant orders and tracking inventory to running automated food production equipment and converting recipes.

- **Respect Computer Resources** If your employer provides you with access to a computer, use it for business purposes only. Personal e-mail, Web surfing, online chatting, and computer games are inappropriate at work.
- **Use Your Own Skills** Computers can help with many aspects of work and running a business. But do not expect computers to do your job. Computer technology can help you, but a computer cannot think or solve problems. Be sure your basic skills are strong enough to **compensate**, or make up for the lack of something, when the computer system goes down. Commit yourself to learn and maintain the technological processes that apply to your job.

Reading Check **Explain** What are some sources where you can gather information?

SECTION 4.1

After You Read

Review Key Concepts

1. **Describe** three important math skills needed to work in the foodservice industry.
2. **List** the characteristics of a reliable employee.
3. **Identify** key resources a leader must use to be successful.

Practice Culinary Academics

English Language Arts

4. Imagine that you have been asked to lead a foodservice team that will prepare and serve refreshments for an upcoming school event. Create a flyer to attract volunteers for your team. The flyer should list the qualities you want in team members to help you carry out your task. It should also contain information about the event, and the food that will be prepared. Use graphics on your flyer, if possible, to make it more attractive.

Mathematics

5. One of your customers asks for her check. If she ordered \$86.25 worth of food and drinks, and the local sales tax is $8\frac{1}{4}$ percent, what is the amount of sales tax due?

Math Concept Converting Percentages to

Decimals Find the percent of a number by converting the percentage to a decimal and multiplying by that number. If the percentage includes a fraction, convert the fraction to a decimal first.

Starting Hint Rewrite $8\frac{1}{4}$ percent as 8.25%. Convert 8.25% to a decimal by removing the percent sign and moving the decimal point two places to the left (0.0825). Multiply 0.0825 by \$86.25 to determine the tax due.

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SECTION 4.2

Seeking Employment

Reading Guide

Before You Read

Create an Outline Use this section's heading titles to create an outline. Turn the titles into Level 1 main ideas. Add supporting information to create Level 2, 3, and 4 details. Use the outline to predict what you are about to learn.

Read to Learn

Key Concepts

- **Identify** sources for foodservice job leads.
- **Illustrate** the proper skills to apply for a foodservice job.

Main Idea

Getting a job in the foodservice industry means sorting through many different options. This section will make you familiar with how to seek and apply for a job.

Content Vocabulary

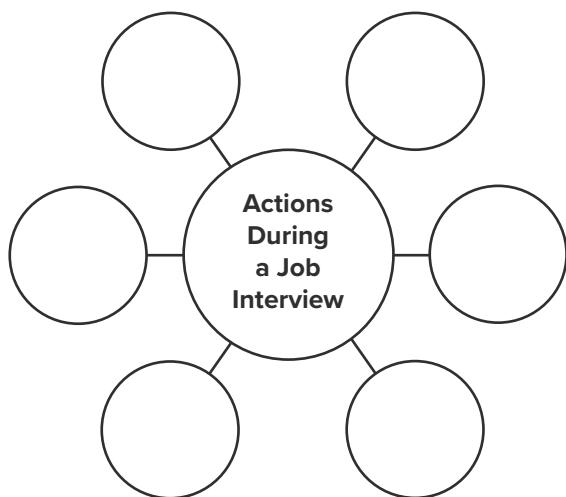
- networking
- trade publication
- employment agency
- job lead
- résumé
- job application
- job portfolio
- job interview
- keyword

Academic Vocabulary

- suitable
- nature

Graphic Organizer

As you read, use a web diagram like the one below to list the six actions you should take during an interview for a job.



Sharpen your skills to find the right foodservice job for you.

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Find Foodservice Employment

Your culinary career begins with your first foodservice job. Finding your first foodservice job will involve sorting through options, however. You may enter foodservice as a server in a restaurant or a counter worker in a bakery. This section will help you understand how to seek and apply for a job in the foodservice industry.

Employment in the foodservice industry is growing. The foodservice industry employs more people than any other private employment segment in the country. According to the National Restaurant Association, more than 15.9 million people in the United States prepare and serve food for a living. Total U.S. sales in foodservice are more than \$1.1 trillion annually. The foodservice industry continues to grow at a steady rate. Dining out is more popular than ever. All of this makes foodservice an ideal career choice. There are many entry-level jobs available. Opportunities for advancement are almost unlimited.

Where can you find out about foodservice job openings? Many first-time job seekers may believe that newspaper classified ads are the only place where they can search for a job. It is true that foodservice jobs are frequently listed in the newspaper. However, there are many other resources that also list foodservice job opportunities.

Job Sources

There are many resources available where you can find information about foodservice job openings. Successful job seekers will use all available resources in their communities. This broadens the opportunities they can find for successful employment.

Networking

If you have ever followed up on a job tip that you received from a family member or a friend, you have practiced networking.



 **Job Support** Culinary experts can give you advice and support as you learn new skills.
From what other sources can you receive advice and support in your career?

Networking means making use of all of your personal connections to reach your career goals. When you ask for job information from people you know, you will be more informed and confident when you apply for those jobs. Networking is the most direct way to find a job. Besides networking with your family members and relatives, there are other people with whom you can network.

Your network can also include:

- **Friends and Classmates** Other people who are interested in culinary arts also will be doing research to find foodservice jobs. They may be willing to share some of their information with you.
- **Teachers and Mentors** Teachers and mentors are adults who already know you. They are familiar with your strengths. They can give you advice on how to make use of those strengths on the job.

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- **Employers and Coworkers** If you already have a job, your workplace also may be a source of information about job openings. Many companies list internal job opportunities and advancement opportunities before they tell the general public. Your coworkers may also know about job openings.
- **Organizations** School organizations, such as FCCLA and SkillsUSA, can help put you in contact with other members. These members may know about foodservice job openings that are available in your area. Community organizations also can provide networking information. Collect business cards as you network so that you can contact them in the future.

When you network, be courteous. Do not pressure people for information. Every reference you receive through networking is a personal gift. Treat it with respect. If you are given a job lead by someone you know, follow up on the lead in a responsible manner. Be on time for job interviews. Return phone calls and always present yourself professionally. Your dress, communication skills, and behavior reflect not only on you, but also on the person who recommended you. If you become aware of job information, share it with the members of your network.

Professional Organizations

You can find foodservice job openings through professional organizations. These organizations are made up of people employed in a field. They network on a state, national, or international level. Professional culinary organizations focus on the industry in general or on specialized areas such as baking.

Usually, you must pay a membership fee to join a professional organization. The benefits of being a member can outweigh the money you spend on the fee. Professional organizations offer publications, job listings, job placement services,

A TASTE OF HISTORY

1927

Charles Lindbergh makes his first solo nonstop flight across the Atlantic ocean

1929

American Culinary Federation established

On-the-Job Training

Today, many foodservice workers get valuable on-the-job training as apprentices through organizations such as the American Culinary Federation. This concept is not new. In fact, apprenticeships also were popular in colonial America. Typically, a boy of age 11 or 12 would agree to work for a master-level craftsman. The master would teach the apprentice a skill for a certain period of time. The apprentice would live with and work for the master as he learned. At the end of this time, the apprentice would become a journeyman. Journeymen could be paid for jobs, even under another employer.

History Application

Pretend you are a master craftsman during American colonial times. Write a want ad seeking an apprentice. Include the job, skills the apprentice will learn, and what the apprentice will get in return.

scholarships, and network opportunities. Foodservice jobs listed with professional organizations are usually higher paying jobs that require more skill than those listed in the local newspaper.

Trade Publications

You can extend your foodservice job search resources if you read culinary trade publications. A **trade publication** is a magazine or newsletter produced by and for members of the foodservice industry. They contain helpful articles on all parts of the industry. Most of them also have sections where employers can list job openings. Subscriptions to many trade publications are often included as part of a membership in professional organizations. Some of these trade publications can also be found in public libraries or on the Internet.

Employment Agencies

One option is to use an employment agency to help with your job search. An **employment agency** is a business that puts employers in touch with potential employees. Employment agencies keep lists of foodservice job openings. You may be able to place your résumé with an employment agency. Most employment agencies charge fees for their services.

The Internet

You can use the Internet to access employment resources and look for foodservice jobs. You can also:

- Network with others.
- Contact professional foodservice organizations.
- Check out online versions of trade publications.
- Register your résumé with online employment agencies.

Keep your foodservice job search notes in a job file. Use a computer file or a set of index cards to record and review job information you receive. An entry in your job file is a **job lead** or possible employment opportunity. Keep a record of each source where you found job leads. (See **Figure 4.2** on page 97.)

Telephone Leads

Your job leads may include listings that give phone numbers and ask you to call for more information. When you make a phone call for a foodservice job lead, follow these guidelines:

- Call the number you have been given.
- Tell the person who answers the phone that you are calling in response to a job opening. He or she will direct your call to the contact person.
- When you are connected to the contact person, greet him or her politely and give your name and the name of the job opening you are interested in. If you were referred by someone, mention that person's name when you first introduce yourself.

- The contact person will tell you about the next steps in the application process. Write notes about the application process. These may include asking you to send a letter of application and a résumé ('re-zə-mā). A **résumé** is a summary of your career objectives, work experience, job qualifications, education, and training. The contact person may offer to send you a job application or set up an appointment to meet. A **job application** is a form that employers use to collect personal information and previous work experience from job applicants.
- Write down all steps you are given. Repeat it back to the contact person to make sure you understand everything. Ask questions if necessary.
- Ask any questions you may have about the application process for the company. Answer any questions the contact person asks you.
- Thank the contact person for his or her time.

Apply for a Job

If you have found several good job leads, rank the possible jobs in order of your preference. Apply for the job you want most first.

The first step is usually to request, complete, and return a job application. Some job leads may require you to begin the application process with a telephone call. Other job leads will ask you to contact the employer by mail. If this is the case, you will send a letter of application and a résumé.

You will also want to create a job portfolio. A **job portfolio** is a collection of papers and samples that can be given to a potential employer. Your foodservice job portfolio should include:

- A résumé
- A letter of application
- A letter of reference
- A list of references that employers can call for more information about you
- A health record
- A copy of your Social Security card

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Job Lead

Job: Kitchen Worker

Key Details: 35 hours per week, mostly evenings and weekends, on-the-job training provided

Employer: The Limberlost Restaurant

Contact Person: Maria Smith, Kitchen Manager

Source of Lead: Mike Smith, neighbor

Next Steps: Complete and return job application by October 25

The second step to getting the job you want will be to secure a job interview. A **job interview** is a formal meeting between you and your potential employer. It is important to perform each step of the job application process in a polite and professional manner.

Job Applications

Make a good professional first impression. Do not walk into a potential workplace, even to ask for an application, unless your clothing is neat and appropriate and you are clean and well groomed. Remember that first impressions are usually lasting.

Filling out an application form is usually the first step. You need to know how to fill out a job application form correctly and completely.

Job application forms vary, but they all ask for the same kinds of information. Keep these tips in mind when you fill out a job application:

- Print neatly, and use blue or black ink. Use cursive handwriting for your signature only.
- Read the instructions to complete each blank space on the application before you respond. Try not to make errors. If you need to correct something, draw a neat line through what you need to correct and write the correct response.



FIGURE 4.2 Job Leads

Finding Work Job leads are usually specific about whom to contact and what skills are needed for the position. *What steps would you take to apply for this job?*

- Carry important information with you. This includes your Social Security number, your driver's license number, and the names, addresses, and phone numbers of previous employers. It can create a poor impression to leave incomplete information in this portion of the application.
- Do not leave any part of the application form blank unless you are asked to do so. If a question does not apply to you, write "NA" or "not applicable" in the space provided. Employers will not consider applications that are not complete.
- Always tell the truth on an application. Submitting false information on a job application is illegal. You can be fired, and even prosecuted, for submitting false information.

Prepare Your Résumé

Your résumé is a very important tool for job seeking. It gives a prospective employer the information he or she needs to decide if you are **suitable**, or have the right qualifications, for a particular job. Choose the work experience, skills, and education or training that shows you are the best candidate for the job. Always be truthful and accurate.

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Use these guidelines to prepare your résumé:

- Keep your résumé short.
- Stress foodservice education, training, work experience, and basic key skills, if you have any.
- Include your career objective. This is a short sentence that describes what you hope to do as a career.
- Use correct spelling and grammar. Use spell check and grammar check on your computer to check your work.
- Present your résumé on good-quality paper.
- Do not use decorative graphics and pictures.
- Include the right contact information.
- Use keywords to describe your work experience. A **keyword** is a word that makes it easier for employers to search for important information. Your résumé should contain keywords such as foodservice, restaurant, or baking. This makes it easier for employers with foodservice opportunities to find your résumé during an electronic search.

Write Letters

When you respond to a job lead in writing, you must write an effective letter of request or a cover letter to go along with your résumé. Use spell check and grammar check on your computer before you send a letter.

Letter of Request Write a letter of request when you need to ask a potential employer for an application form or for an interview. Include a brief summary of your education, and experience in the letter. A letter of request can also be written to networking contacts to request a reference. Always be polite, and keep your tone professional.

Cover Letter Write a cover letter when a job lead asks you to send a written response. Your cover letter should introduce you to the prospective employer without repeating the information that is already on your résumé. (See **Figure 4.3** on page 99.)

Reading Check **Determine** When should you write a cover letter to a potential employer?

The Interview Process

Once you have completed the application process and have been asked to come in for an interview, you will need to prepare for your job interview. At an interview, you will have the chance to convince an employer that you are the right person for the job that is available. An employer will evaluate you by your appearance, attitude, and the answers you give to his or her questions. Sometimes the interview also includes having a meal with the employer. Remember to demonstrate good table manners. How you present yourself during the interview shows how you will behave in different situations.

Before the Interview

The interview process begins when an employer sets an appointment for your interview. Write down the date, time, and place of the interview. Double-check the information.

Do Your Homework

The more you know about the potential employer and the job opportunity, the better you will do during the interview. Check community business publications, local newspapers, Internet directories, or professional organizations for information about the business. Find out how large the business is, how profitable it has been, and what its plans for the future may be. Make notes about what you learn.

Choose Appropriate Clothing

A potential employer's first impression of you will be based on your appearance. Choose clothing that is appropriate for the workplace, that fits properly and is clean, pressed, and in good condition. Your personal grooming habits can make or break a job interview. You and your clothes should be clean, your hair should be well trimmed and conservatively styled, and your fingernails should be clean and neatly trimmed.

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✓ **FIGURE 4.3** Cover Letters

Introduce Yourself Writing a professional letter to a prospective employer can make you more marketable. *What elements make this letter professional, rather than casual?*

3008 Elm Street
Glencoe, IL 00000
May 31, 20-

Mr. Ron Terelli,
Personnel Director
Good Grains Bakery
6245 Brent Street
Glencoe, IL 00000

Dear Mr. Terelli:

I am responding to your ad in last Sunday's Journal, seeking assistant bakers for the evening shift. I would like to apply for this position.

On May 15, I will graduate from Glencoe High School. In addition to required classes, I have taken culinary arts and computer science. I am an active member of the local Family, Career, and Community Leaders of America (FCCLA) chapter.

During my last year in high school, I was enrolled in a work-experience program as an assistant baker at Marie's Donuts.

I would like to schedule an interview. You can reach me at home after 3 p.m. My telephone number is 555-555-5555. Thank you for considering me as a future employee.

Respectfully,

Carlos Fuentes
Carlos Fuentes

Ask for an interview.

Sign your name.

State where you learned about the job.

State that you want to apply for the job.

State your phone number.

State your education and experience.

Be Prompt and Courteous

On the day of the interview, allow yourself plenty of time to locate the interview place. It is best to arrive a few minutes early. As you introduce yourself to a receptionist, host, or other person before meeting with the interviewer, be polite and respectful. The interviewer may check with these people later to see how you behaved.

During the Interview

The interview is very important. You will do well if you are prepared, positive, and relaxed. Remember, business etiquette is like the good manners that should be used at home. Keep the following points in mind:

- **Shake Hands** The interviewer will introduce himself or herself to you. Introduce yourself in return, and offer your hand for a firm, confident handshake. Remain standing until the interviewer asks you to be seated. He or she will probably begin with a few simple questions or comments to help you feel more at ease. Smiling never hurts.
- **Make Eye Contact** Maintain eye contact throughout the interview. Eye contact with the interviewer helps show that you are listening and are interested in what the interviewer is saying.
- **Speak Clearly** Use correct grammar and speak clearly. The interviewer will ask you questions designed to determine if you are the right person for the job. Answer the interviewer's questions completely.
- **Use Good Office Manners** Sit up straight, with both feet on the floor. Avoid nervous gestures, such as tapping. Never chew gum during an interview.
- **Answer Thoughtfully and Completely** Do not interrupt the interviewer or become sidetracked as the interviewer speaks. If you do not understand a question, ask the interviewer for clarification. If you do not know the answer, say so politely.

- **Ask Questions** The interview process is meant to help you get information, too. Ask the interviewer about the **nature**, or basic structure, of the job, your responsibilities, and the work environment. Save questions about the rate of pay and employee benefits, such as vacation time, for the end of the interview.

Ending the Interview

Regardless of how the interview ends, thank the interviewer for his or her time. A professional attitude accompanied by good manners will always be remembered. Shake hands as you leave.

The interviewer will signal the end of the interview in one of the following ways:

- **You May Be Contacted Later** If the interviewer does not specify a time period, politely ask, "When may I expect to hear from you?"
- **You May Be Asked to Contact the Employer Later** Ask for the telephone number, the preferred time to call, and the contact person's name.
- **You May Be Offered the Job** You may be asked to decide right away whether you will take the job. If you are unsure, ask the interviewer if you may think about the offer. If this option is offered, follow up by responding promptly.

~ Small Bites ~

Common Job Interview Questions

Some questions you can expect to be asked in a job interview include:

1. Why would you like to work for this company?
2. What are your qualifications for this job?
3. What are your strengths and weaknesses?
4. Why did you leave your last job?
5. Tell me about a challenge you met or a problem you solved in school or on the job.

Prepare answers to these common questions ahead of time so you can make a good impression during an interview.

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Interview Skills The job interview is your chance to make a good impression.
How can your manners affect an employer's decision to hire you?

- **You May Not Be Offered the Job** Do not be discouraged if you are turned down for a job. You may not have the right skills, or the employer may have found another applicant who is more suited to the job. The interviewer is under no obligation to tell you why you are not being offered the job. Accept the decision gracefully.
- **Follow Up** If you have been asked to contact the employer, do so at the specified time. Send or deliver any information, such as references, that you have agreed to supply. If the employer has promised to contact you, wait the specified amount of time. If this time passes, telephone the employer and politely request information about the status of your application. You may be asked to provide more information.
- **Review the Session** As soon as possible after the interview, go over the session in your mind. Think about the first impression that you made. Make notes on anything you think you might do to improve during your next job interview. List any key information, such as employer expectations and job responsibilities, for this job. Write out any unanswered questions you have about the job. You may be able to ask these questions at a later time during a second interview.

Job Offer Responses

When you receive a job offer from a potential employer, you have three options available to you as a response:

- **Accept the Offer** The employer will give you information on when you can begin work. You may be asked to participate in employee orientation or a training session before formally beginning your job. The employer will usually set up another interview. At this second interview, you will be given specific details on pay, benefits, schedules, and other job expectations. This is a good time for you to ask specific details about your work.
- **Ask for Time to Consider** This is the time to ask any unanswered questions that might affect your decision. With the

employer, come to an agreement on when you will notify him or her of your decision. Do not put off responding to the employer.

- **Turn Down the Job Offer** You may decide that the job is not right for you. Or, perhaps you have been offered a better job in the meantime. If you do not intend to take the position that has been offered, say so. You do not need to give reasons for turning down a job offer. Simply say to the contact person, “Thank you for considering me, but I am not interested in taking the position.” Always remain polite. There may come a time when you will meet the contact person again.

Reading Check **List** What are the steps that you should take after a job interview?

SECTION 1.2

After You Read

Review Key Concepts

1. **Identify** potential networking sources.
2. **Describe** the proper way to fill out an application.

Practice Culinary Academics

English Language Arts

3. Follow your teacher’s instructions to form pairs. Role-play a job interview between an employer and a prospective employee. Then, switch roles. Give a short presentation on what behaviors made the most difference from each perspective.

Social Studies

4. Re-read “A Taste of History: On-the-Job Training” from this section. As a class, discuss the impact of apprenticeship on the foodservice industry and how apprenticeships are used today to benefit individuals in the foodservice industry.

Mathematics

5. You receive a job through an employment agency that charges a fee equal to 10% of your first month’s wages. If you make \$12.50 per hour, and work 160 hours your first month, what is the total fee?

Math Concept **Converting Percentages to Fractions**

Since a percentage represents a ratio of a number to 100, every percentage can be rewritten as a fraction with 100 as the denominator and the percentage as the numerator.

Starting Hint Rewrite 10% as a fraction ($\frac{10}{100}$) and simplify to $\frac{1}{10}$. Multiply this fraction by the total first month’s wages earned (\$12.50 per hour \times 160 hours) to determine the total fee due.

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SECTION 4.3

On the Job

Reading Guide

Before You Read

Prepare with a Partner Before you read, work with a partner. Read the titles of the heads and ask each other questions about the topics that will be discussed. Write down the questions you both have about each section. As you read, answer the questions you have identified.

Read to Learn

Key Concepts

- **Summarize** the rights and responsibilities of employees and employers.
- **Explain** the differences between tips, deductions, and benefits.

Main Idea

Employees have certain rights guaranteed to them. They also have responsibilities to their employer. If you work well, you may gain opportunities for advancement.

Content Vocabulary

- evaluation
- initiative
- workers' compensation
- repetitive stress injury
- minimum wage
- compensatory time
- labor union
- discrimination
- probation
- empathy
- ethics
- gross pay
- deduction
- net pay
- tip
- benefits

Academic Vocabulary

- outline
- field

Graphic Organizer

Use a KWL chart like the one below to keep track of your knowledge of working in the foodservice industry. Fill out what you already know in the first column. Read the section headings and write down what you want to know more about in the second column. After you have read the section, write down what you have learned in the third column.

Employee Responsibilities on the Job

What I Know	What I Want to Know	What I Have Learned

Know your rights and responsibilities as a foodservice employee.

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Rights and Responsibilities

It does not matter whether a job makes you part of a large workforce or of a small business. When you accept a job, you enter into a relationship. As an employee, you must maintain a good relationship between yourself and your employer. Both you and your employer have rights and responsibilities. Specific expectations and work rules will be explained to you by your employer when you begin your job.

In this section, you will learn about your rights as an employee and your responsibilities to your employer. You will learn about wages, taxes, and benefits. You will practice the skills you need to get along with coworkers on the job. You will also identify some of the qualities that you will need to advance in the foodservice industry.

Employee Responsibilities

As an employee, your main responsibility is to do the very best job possible for your employer. This means that you must be responsible, reliable, flexible, and honest. It also means that you must use job resources correctly and efficiently.

There are several ways for you to carry out your responsibilities:

- Show up for work when you are scheduled, and be on time for work. Stay at work for your full shift, or the specified hours of employment. Return promptly from designated breaks and meal periods.
- Use your work time responsibly. Keep busy on the job. Do not waste time chatting with coworkers. Never use company time or resources for personal business.
- Respect the business by learning and following your employer's rules, regulations, and policies. You will probably be given an employee handbook. Once you review the policies, you may be asked to sign a statement that says

FIGURE 4.4 Culinary Advancement Opportunities

Move Up There are many job advancement opportunities in a professional kitchen. *Which of the jobs listed in the table are service-related?*

From	To
Server	Head server
Busser	Server
Dishwasher	Kitchen helper
Counter worker	Assistant manager
Host	Server
Dining room supervisor	Banquet captain
Cafeteria attendant	Cafeteria supervisor
Short-order cook	Line cook
Kitchen worker	Pantry supervisor
Baker's assistant	Baker
Cook	Sous chef
Caterer or chef	Restaurant owner
Prep cook	Line cook
Garde manger	Caterer
Pastry cook	Pastry chef
Line cook	Sous chef
Sous chef	Executive chef
Executive chef	Corporate chef

that you understand them. If you are in doubt about a company policy, ask your employer any questions.

- Work safely and familiarize yourself with the safety requirements of your job. Learn how to operate and maintain equipment safely. Report any unsafe conditions or practices to your supervisor immediately.
- Maintain a positive, enthusiastic attitude. Be polite and respectful to supervisors, other employees, and customers. Follow directions that you are given. Accept constructive criticism, and try to work your best without constant supervision.
- Complete each task that you are assigned. Keep your work area neat and well organized. Use company resources efficiently and responsibly.

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Safety First Performing your work safely protects you and your employer. *What other responsibilities do employees have on the job?*

Advance on the Job

Foodservice jobs offer many ways to advance. Advancement may come as a job promotion. Advancement also may include getting more responsibilities at the same job level. Sometimes, advancement may involve leaving your current workplace for a better job elsewhere, or beginning your own business. (See **Figure 4.4**.)

You will know how well you perform your job through evaluations that you receive from your employer. An **evaluation** is a written report of how well you have performed your duties, and what you can do to improve. You can use this information to make yourself ready for advancement.

Two qualities that will help you advance in your career are initiative and the desire to learn. The willingness to take on new tasks and levels of responsibility shows initiative (i-ni-shə-tiv). **Initiative** is the energy required to begin new tasks and see them through to completion. Workers with initiative do not wait to be told by their employers what to do

next. They seek ways to improve their on-the-job performance.

The desire to learn is also important. Continue your education or training through formal classes, workshops, or independent study. Be excited about the opportunity to learn and practice new workplace skills.

Employer Responsibilities

The employer-employee relationship goes both ways. Your employer has responsibilities to you, too. Your employer's main responsibility is to make sure that you are paid fairly for the work that you do. Your employer is also responsible to:

- Supply what you need to do your job.
- Provide you with safe working conditions.
- Make sure that you are treated fairly.

Your employer will **outline**, or describe in a basic way, what your job responsibilities and expectations are. You also may be offered on-the-job training. If you have any questions about your job duties, ask your supervisor.

Safe Working Conditions

Federal, state, and local regulations require your employer to provide you with safe working conditions. Your employer must:

- Eliminate any known health and safety hazards in the workplace.
- Provide you with the equipment and materials that are necessary for you to do your job safely.
- Let you know when job conditions or hazardous materials create a danger to your health and safety.
- Keep accurate records of job-related illnesses and injuries.
- Comply with environmental protection policies to safely dispose of waste materials.

Workers' Compensation

If you are injured on the job and cannot work, your employer has a legal responsibility to provide financial help. **Workers' compensation** is insurance that pays for medical expenses and lost wages if you are injured on the job. Your employer is required to pay for this insurance.

Preventing injuries is another important responsibility for your employer. For example, employers have supported research into common workplace injuries. One of these injuries is a **repetitive stress injury**, which can happen to employees who must perform the same motions over and over. Repetitive stress injuries can potentially disable an employee. Your employer should periodically evaluate the workplace to make sure that it is as safe as possible from injury. Some employers also offer information and classes on avoiding injury in the workplace.

Fair Labor Practices

Your employer has a legal responsibility to protect you from unfair treatment on the job. The federal government has passed laws to protect workers. U.S. labor laws are meant to protect the following rights of employees as they work at their jobs:

- To have an equal opportunity to find and keep employment, regardless of age, gender, race, ethnicity, religion, physical appearance, disability, or other factors.
- To be paid a fair wage.
- To be considered fairly for promotion, based on your skills and past performance.
- To be protected in times of personal and economic change.

Employers must pay their employees at least the federal minimum wage. The **minimum wage** is the lowest hourly amount a worker can earn. Some states have their own minimum wages. An employer must pay employees whichever minimum wage rate is higher. Some businesses pay employees a higher minimum wage than the federal government requires. Employers must compensate employees who work overtime with extra pay or time off. Paid time off to reimburse workers for overtime is called **compensatory time**.

American workers are guaranteed the right to join a labor union. A **labor union** is an organization of workers in a similar **field**, or line of work. Labor unions act as the voice of their members in collective bargaining. Collective bargaining includes negotiating safe working conditions, employment contracts, and other job benefits. About 15% of American workers belong to labor unions.

Employers must also protect their employees from discrimination in the workplace. **Discrimination** is unfair treatment based on age, gender, race, ethnicity, religion, physical appearance, disability, or other factors. For example, sexual harassment, or any unwelcome behavior of a sexual nature, is forbidden in the workplace. If you think that you have been a victim of discrimination, report the incident to your supervisor immediately so that he or she can take action.

Performance Evaluations

Your employer must provide you with feedback on your job performance. Some employers consider the first few months of your

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time working on a new job to be an employee probation (prō-^{bā-}shēn) period. **Probation** is a short period of time when you first start work that gives your employer a chance to monitor your job performance closely. Your employer will use your probation time to confirm that you can do the job. Most probation periods last for three months.

Teamwork

You also enter into a relationship with your coworkers when you take a job. Many workplaces focus only on individual skills. Foodservice workplaces also focus on working as a team. Every worker is an individual, with his or her own personality traits, strengths, and weaknesses. To bring individuals together to create an effective team, each employee must practice good teamwork skills.

Keep a positive attitude. An upbeat, positive outlook contributes to the team spirit of the group. Complaining can bring down the attitude of the whole team and affect your job performance.

Respect yourself and others while on the job. You demonstrate self-respect when you accept responsibility for your actions, learn from your mistakes, and take care of your appearance. Being disrespectful can result in being fired from your job. Learn to practice empathy ('em-pē-thē) to better understand your coworkers. **Empathy** is the skill of thinking about what it would be like in another's place.

Resolve Conflicts

No matter how well you and your coworkers get along, you will not always agree. Disputes and conflicts are an inevitable part of being part of a team. While conflict can be unpleasant, you can learn something from the process of working to resolve conflicts respectfully. There must be give and take. Learn to negotiate.

You may find that there are some conflicts that cannot be resolved. Remember to focus on the problem. Do not focus on the personalities involved. Try to concentrate on performing your work to the best of your ability. If you are unable to work because of a conflict, discuss the issue with a manager. A manager may have a different view of the situation.



Workplace Diversity

Your coworkers may have different backgrounds and opinions.

How can you demonstrate positive interpersonal skills with coworkers?



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~ Small Bites ~

Ending Employment There may come a time when you must terminate your employment. Always try to leave on good terms. Give at least two weeks' notice before leaving to give your employer time to find your replacement. Work as hard during those weeks as you did before you gave notice.

Behaving ethically also means taking responsibility. If you make a mistake, you should admit it. Responsible employees learn from their mistakes and change their behavior to make better choices.

Reading Check **Explain** What are some responsibilities that a worker owes to his or her employer?

Ethical Behavior

Ethical behavior means doing what is right. Your **ethics** ('e-thiks) are your internal guidelines to distinguish right from wrong. Much of the time, it is easy to recognize the ethical course of action. When two choices appear equally right or equally wrong, ask yourself the following questions:

- Does the choice comply with the law?
- Is the choice fair to those involved?
- Has the choice been communicated to me honestly?
- Will I feel embarrassed or guilty about the choice?

Wages and Benefits

When you agree to take a job, you trade your skills and efforts for pay. Your pay is determined by a number of factors, including your level of experience, the difficulty of the work, and the number of people competing for the same job. Employers pay weekly, every two weeks, or once a month.

If you are paid an hourly wage, your employer will pay you a certain amount for each hour that you work. Your pay will vary depending on how many hours you work. If you receive a salary, your employer will pay you a set amount of money regardless of how many hours you work.

Gourmet Math

Overtime Pay

Some employers would rather have an employee work overtime than hire additional help. The cost to hire and train new employees and the added cost of employee benefits are higher than the amount the employer would pay in overtime. Overtime pay may be paid at time-and-a-half or two times your hourly wage. Garrett is paid time-and-a-half overtime for any time he works over 40 hours in one week at Mason's Cafeteria. Last week, Garrett worked 44 hours. If Garrett's hourly rate is \$10.40, how much was his gross pay for last week?

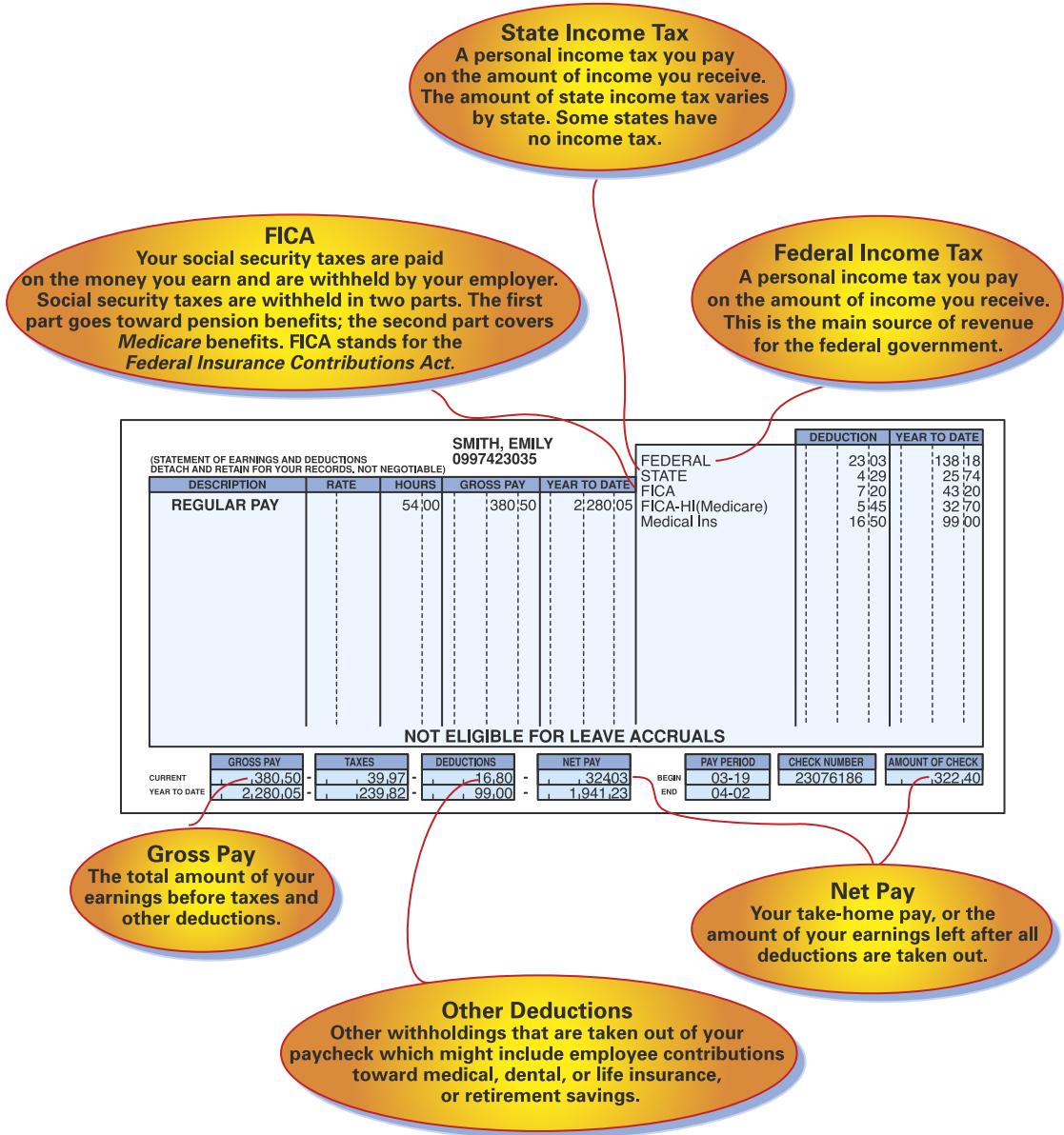
Math Concept Rate Increases To calculate an increased rate, multiply the original rate by the increase. For example, to calculate time-and-a-half pay, multiply the normal hourly rate by 1.5.

Starting Hint Determine the number of regular hours and the number of overtime hours Garrett worked. Multiply the number of regular hours times his normal hourly rate to determine his base pay. Multiply the number of overtime hours times his overtime pay rate ($1.5 \times \$10.40$) to find his overtime pay. Add the overtime pay to the base pay to determine Garrett's gross pay.

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FIGURE 4.5 Paycheck Deductions

Pay Stub Elements A pay stub shows you the amount of each deduction taken from your paycheck. *What types of deductions may be withheld from your gross pay?*



Deductions

The total amount of money you are paid from working is called your **gross pay**. A **deduction** is money that is withheld from your gross pay for taxes, insurance, and other fees. The amount of money you actually receive after deductions is called your **net pay**, or take-home pay. (See **Figure 4.5**.) Ask your employer to explain any deductions.

Tips

Some foodservice workers earn tips amounting to between 10% and 20% of the customer's check. A **tip** is a small bonus payment from a customer as a reward for excellent service. Because employers are allowed to count tip money as part of a worker's minimum wage, some foodservice workers may actually earn more in tips than they do in wages.

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If you earn tips as part of your job, it is your responsibility to keep a record of the money you earn. You will need to report your tips as income when you file federal and state tax returns.

Benefits

In addition to your salary, your employer may offer benefits. **Benefits** are services or payments provided by an employer in addition to wages. Common benefits that employers give to employees include:

- Health and accident insurance. Sometimes employers will allow employees to pay for health insurance to cover dependents.
- Paid vacation days.
- Discounts on meals or company products for employees.
- Life insurance.

- Disability insurance, a policy that helps pay your expenses if you become disabled and can no longer work.
- Tuition reimbursement, or full or partial repayment of fees you pay for education courses that are related to your career.
- Savings and investment plans, such as a 401K, to help you earn money for retirement.

Figure in any benefits when you calculate your job compensation. A high wage may make up for few benefits. A good range of benefits, on the other hand, can make up for a lower wage. Carefully consider what benefits are important to you before you accept the job.

Reading Check **Summarize** What are the two ways that an employer can choose to pay an employee?

SECTION 4.3 After You Read

Review Key Concepts

1. **Explain** the concept of worker's compensation.
2. **List** the different types of benefits an employer may offer.

Practice Culinary Academics

English Language Arts

3. Follow your teacher's instructions to work with another student. Role-play a restaurant manager and a line cook discussing the line cook's duties. Then, switch roles. How did you communicate as an employer and as an employee? Write a short summary of your experience.

Social Studies

4. Choose an aspect of fair labor practices, such as minimum wage or discrimination, and research the development of the practice throughout history. Write a short report on the subject you have chosen. Be sure to list your sources.

Mathematics

5. You worked 38 hours waiting tables at a restaurant last week, earning \$8.75 per hour. In addition, you received \$326.86 in tips for the week. How much money did you make per hour, including tips?

Math Concept **Multiplying Decimals** Multiply decimals the same way you would multiply whole numbers. Add the number of decimal places in each factor, and use that total number of decimal places in the product.

Starting Hint Determine your total wages for the week by multiplying your hours worked (38) by your hourly wage (\$8.75 per hour). Add this amount to your tip income, then divide by the number of hours worked.

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Chapter Summary

Basic employment skills for the foodservice industry include math, reading, writing, speaking, and listening skills. To find a job at a foodservice establishment, you can network with other professionals, join professional organizations, and read trade publications. You should also prepare

a résumé as part of a job portfolio. Both employers and employees have certain rights and responsibilities in the workplace. If you work well, then there will be opportunities for you to advance to positions with better pay and more responsibility.

Content and Academic Vocabulary Review

1. Label each of these vocabulary terms as a noun, verb, or adjective.

Content Vocabulary

- calculate (p. 84)
- make change (p. 85)
- active listening (p. 85)
- distraction (p. 85)
- work ethic (p. 88)
- responsibility (p. 88)
- flexibility (p. 89)
- honesty (p. 89)
- reliable (p. 89)
- teamwork (p. 89)
- commitment (p. 90)
- leadership (p. 90)
- resource (p. 91)
- prioritize (p. 91)
- networking (p. 94)

- trade publication (p. 95)
- employment agency (p. 96)
- job lead (p. 96)
- résumé (p. 96)
- job application (p. 96)
- job portfolio (p. 96)
- job interview (p. 97)
- keyword (p. 98)
- evaluation (p. 105)
- initiative (p. 105)
- workers' compensation (p. 106)
- repetitive stress injury (p. 106)
- minimum wage (p. 106)
- compensatory time (p. 106)
- labor union (p. 106)
- discrimination (p. 106)

- probation (p. 107)
- empathy (p. 107)
- ethics (p. 108)
- gross pay (p. 109)
- deduction (p. 109)
- net pay (p. 109)
- tip (p. 109)
- benefits (p. 110)

Academic Vocabulary

- qualities (p. 88)
- compensate (p. 92)
- suitable (p. 97)
- nature (p. 100)
- outline (p. 105)
- field (p. 106)

Review Key Concepts

2. Demonstrate basic employability skills in foodservice.
3. Evaluate the characteristics of a positive work ethic.
4. Identify the leadership skills necessary for foodservice employment.
5. Identify sources for foodservice job leads.
6. Illustrate the proper skills to apply for a foodservice job.
7. Summarize the rights and responsibilities of employees and employers.
8. Explain the differences between tips, deductions, and benefits.

Critical Thinking

9. Imagine that you are working as the host in a restaurant. You overslept and you are running late. What should you do, and why?
10. Offer advice to your friend Carla. She wants to apply for a job as a server at a nearby restaurant. You know that she is friendly and outgoing, but that sometimes she does not finish her school assignments on time. What tips can you give her to get and keep the job?

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Academic Skills

English Language Arts

11. Telephone Techniques Follow your teacher's instructions to form pairs. Role-play answering the telephone for foodservice businesses. Scenarios may include taking a reservation, transferring calls, and taking customer special requests. Use your best speaking and listening skills, as well as your customer service skills. Then, switch roles. As a class, evaluate how employee phone manners can affect customer service.

Science

12. Create a Safety Assessment Employee safety is an employer's responsibility. Employers should take the time to assess whether working conditions are safe for all employees.

Procedure Assess your foods lab for safety, as if you were an employer. Pay attention to areas around cooking appliances and chemical storage.

Analysis Create a list of the areas that you think should be checked regularly for safety. Using the list, write a short summary of the current safety of your foods lab and how it might be improved.

Mathematics

13. Find a Percentage You are waiting on three tables at a high-end restaurant during dinner service. Customer A leaves a tip of \$35 on a \$245 check. At another table, Customer B's meal costs \$112.50, and she leaves you a tip of \$17.50. Finally, Customer C leaves you a tip of \$40 on a \$260 check. Out of the three, which customer was the best tipper, on a percentage basis?

Math Concept **Solving Percentage Problems with Proportions**

When you know two of three values (part, base, percentage) in a percentage problem and need to determine the third, set up a proportion and solve for the missing value: $\frac{\text{Part}}{\text{Base}} = \frac{\text{Percent}}{100}$

Starting Hint Determine the tip percentage for each customer using the formula above, substituting the tip amount for Part, the check amount for Base, and the variable p for Percent. For Customer A: $\frac{\$35}{\$245} = \frac{p}{100}$

Cross-multiply the proportion to get $\$35 \times 100 = 245 \times p$, or $3,500 = 245p$. Divide both sides by 245 to solve for p , which represents Customer A's tip percentage.

Certification Prep

Directions Read the questions. Then, read the answer choices and choose the best possible answer for each.

14. What position can you advance to if you start as a host?

- a. sous chef
- b. server
- c. kitchen helper
- d. caterer

15. How might a server use math skills?

- a. to weigh ingredients
- b. to estimate profits
- c. to adjust recipe yields
- d. to make change

Sharpen your test-taking skills to improve your kitchen certification program score.

Test-Taking Tip

In a multiple-choice test, the answers should be specific and precise. Read the questions first, and then read all the answer choices before you choose. Eliminate answers that you know are incorrect.

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Review and Applications

Real-World Skills and Applications

Communication Skills

16. Interview a Restaurant Employee Interview a restaurant employee about how he or she got their job. Ask what the employee considers the most important skills used on the job. After you have completed your interview, give a five-minute oral report to the class on what you have learned, and relate it back to the information in the chapter.

Interpersonal and Collaborative Skills

17. Overcome Prejudice Follow your teacher's directions to divide into pairs or small groups. Role-play ways in which stereotypes and prejudices might negatively effect employee relations. Also role-play possible solutions to the situations you portray. Try to use good management and problem-solving skills to resolve the situation.

Technology Applications

18. Explore Job Search Resources Get your teacher's or parents' permission to go online and search for Internet job search resources, such as networking sites, professional organizations, and online job listing services. Choose one resource from the list and write a one-page summary of how to use it to look for foodservice jobs.

Financial Literacy

19. Determine Your Financial Situation Imagine that you are starting a job as a prep cook at a restaurant, making \$7.25 per hour. You will work a full 40 hours per week at your new job, with no overtime. You will be paid every two weeks, and 15% of your pay will be deducted from each paycheck for taxes and fees for insurance. How much money will you take home per month?

Culinary Lab

Interview Practice

20. Participate in Mock Interviews In this lab, you will invite a local foodservice manager, such as a chef, restaurant manager, or deli manager, to conduct mock interviews with the class. Then, you will evaluate the interviews.

- A. Research background information.** Research background information about the operations for which the guest interviewer works. Prepare any questions you have for the interviewer about his or her place of business.
- B. Prepare your résumé.** Write your résumé and complete a sample employment application.
- C. Interview for a job.** Participate in mock interviews with the guest interviewer. Videotape the interviews, if possible.
- D. Create an evaluation chart.** Use the following rating scale: Poor = 1; Fair = 2; Good = 3; Great = 4.
- E. Evaluate the interviews.** Evaluate the videotaped interviews using the evaluation charts. List strengths and offer suggestions for improvement.

Use the culinary skills you have learned in this chapter.

Create Your Evaluation

Review your evaluation chart and the evaluations given to you by the teacher and other students. Create a plan for your next interview that includes the strengths that you will try to repeat and also includes your weaknesses and how you will try to improve on them so you can do a better interview.

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Culinary Applications

Chapter

- 15 Cooking Techniques
- 16 Seasonings and Flavorings
- 17 Breakfast Cookery
- 18 Garde Manger Basics
- 19 Sandwiches and Appetizers
- 20 Stocks, Sauces, and Soups
- 21 Fish and Shellfish
- 22 Poultry Cookery
- 23 Meat Cookery
- 24 Pasta and Grains
- 25 Fruits, Vegetables, and Legumes

EXPLORE THE PHOTO

Culinary workers must prepare a variety of foods. *What types of foods have you prepared?*



Anderson Ross/Blend Images LLC

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Local and Seasonal Foods

After completing this unit, you will know how to identify and cook a variety of foods. In your unit thematic project you will find foods from your local area. Then you will create a visual presentation on how to prepare them and prepare a dish using them.

My Journal

Write a journal entry about the different types of foods you have made.

- What ingredients have you used?
- How did you choose them?
- How did you cook them?



JOHNSON & WALES
UNIVERSITY

“Culinary school allowed me to experience a tremendous amount of new foods and spices, and even tickled taste buds I never knew I had.”

Zena Harrison
Assistant Food and
Beverage Director/Catering
Chef
Compass Group

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Cooking Techniques

SECTIONS

- 15.1 How Cooking Alters Food
- 15.2 Dry Cooking Techniques
- 15.3 Moist Cooking Techniques

WRITING ACTIVITY

Cause-and-Effect Paragraph

Cause-and-effect paragraphs explain the reasons for something, or the results of something. Write a cause-and-effect paragraph about how an egg changes when it is cooked.

Writing Tips

- 1 Use focusing sentences to help readers anticipate organization.
- 2 Use conjunctions such as "as a result," "due to," or "because."
- 3 End with a concluding sentence.

EXPLORE THE PHOTO

Different cooking methods affect the flavor, texture, appearance, and nutritional content of food. *How many different cooking techniques can you name?*



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SECTION 15.1

How Cooking Alters Food

Reading Guide

Before You Read

Think of an Example Look over the Key Concepts for this section. Think of an example of how or when you could use one of the skills from the Key Concepts. Thinking of how you might apply a skill can help motivate your learning by showing you why the skill is important.

Read to Learn

Key Concepts

- **Compare and contrast** different cooking methods.
- **Explain** how cooking affects a food's nutritive value, texture, color, aroma, and flavor.

Main Idea

Cooking is heating food to transform it in some way. Food is affected in different ways by different cooking techniques.

Graphic Organizer

As you read, you will discover five changes in food made by cooking. Use a herringbone diagram like this one to list the changes.

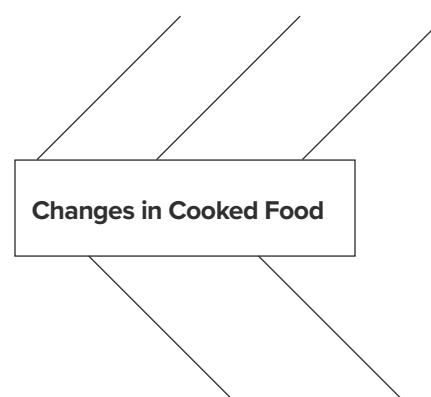
Content Vocabulary

- dry cooking technique
- coagulate
- evaporate
- pigment
- moist cooking technique
- caramelization
- combination cooking

Academic Vocabulary

- subject
- enhance

Use different cooking techniques for different foods.



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Cooking Techniques

Suppose the restaurant where you work offers chicken for dinner. There can be many different results, depending on how you choose to cook the chicken. You use very different cooking techniques to cook an egg, grill a steak, or stew tomatoes. Although each technique involves heating the food, they all use a different process to transfer heat to the food.

The degree of change that occurs during the cooking process depends on the length of cooking time, the temperature, and the cooking technique you use. Some methods will produce a great deal of change, while others will not produce very much change. The three cooking techniques are dry, moist, and a combination of both.

Dry Cooking

A **dry cooking technique** uses oil, fat, the radiation of hot air, or metal to transfer heat. No moisture is used in this cooking process. Any moisture that comes from the food evaporates

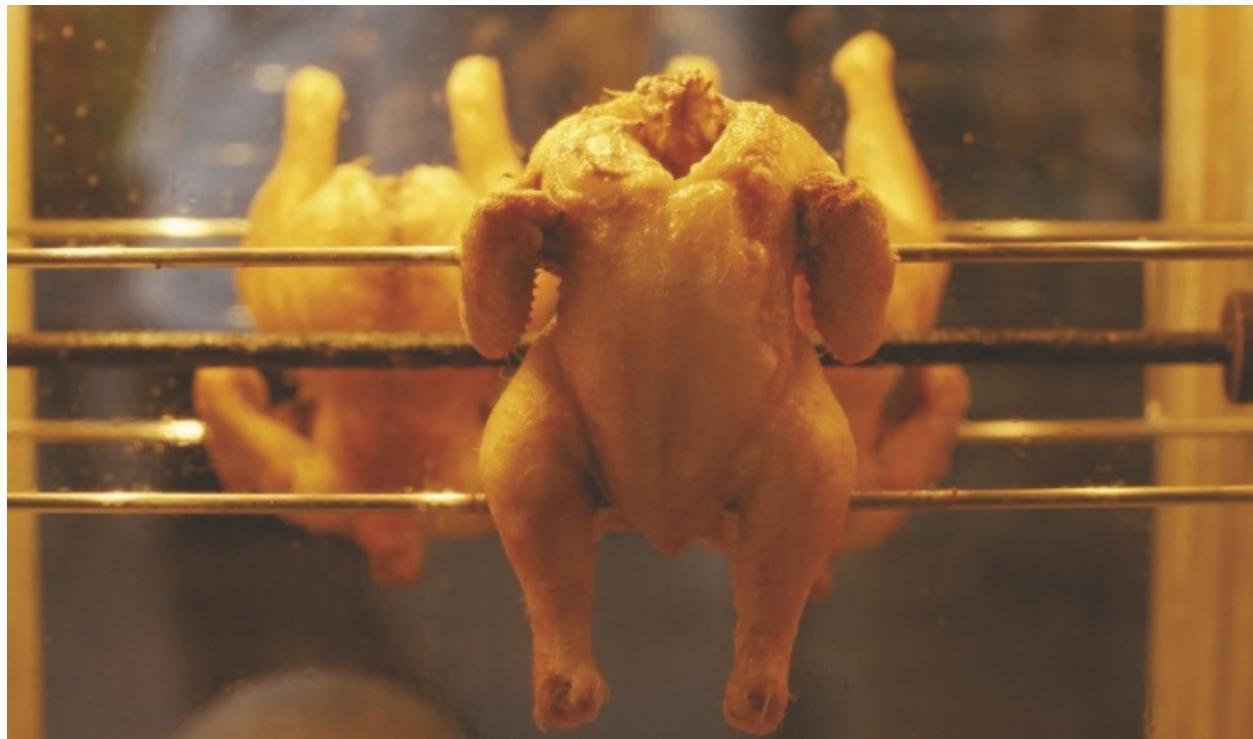
into the air. To **evaporate** means that a liquid escapes from a pan as a vapor. Baking and sautéing are good examples of dry cooking techniques. You will learn more about using dry cooking techniques in Section 15.2.

Moist Cooking

A **moist cooking technique** uses liquid instead of oil to create the heat energy that is needed to cook the food. Boiling and simmering are good examples of moist cooking techniques. You will learn more about how to use moist cooking techniques in Section 15.3.

Combination Cooking

Combination cooking uses both moist and dry cooking techniques. This kind of cooking is a two-step process. You start by using one technique and finishing with the other. For example, for stew, you brown the meat, a dry cooking technique. Then, you simmer the meat and vegetables with seasonings, a



Uwe Stiske/Image Source, all rights reserved.



Method Knowledge You must know many different cooking methods to work in a professional kitchen. *Why is it important to understand how different cooking methods work?*

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Perfect Timing Perfectly cooked vegetables should be colorful and flavorful.
What happens to vegetables that have been overcooked?

moist technique. The objective of combination cooking is to build upon food flavors. If you understand each type of cooking technique, you can combine them in ways that create great-tasting food. You will learn more about how to use combination cooking techniques in Section 15.3.

Reading Check **Distinguish** What are the key differences between the dry, moist, and combination cooking techniques?

Changes in Cooked Food

A food's nutritive value, texture, color, aroma, flavor, and appearance do not stay the same after cooking. The cooking technique you choose can affect all of these factors. It is important to know how food will change after it is cooked.

Nutritive Value

The length of time food is cooked and the cooking technique you use determine how much nutrition a food will retain. Raw foods

lose more nutritive value the longer they cook. In fact, certain cooking techniques can actually speed up nutrient loss. For example, boiling green beans extracts nutrients in two ways. Nutrients are destroyed simply because the green beans are exposed to heat. Nutrients also are lost during boiling because they are diluted in the liquid.

You might think that if you steam the green beans, you will maintain all of the nutrients. Although steaming is one of the best ways to minimize nutrient loss, exposure to heat will still extract some nutrients from the green beans. However, because the vegetables are cooked by the steam, and not in water, they will not lose nearly as many nutrients as if they had been boiled.

Texture

If you have ever overcooked vegetables, you have seen how cooking can change the texture of food. During cooking, moisture is lost, food tissue breaks down, and proteins coagulate. All of these factors change the texture of cooked food.

When heat is applied, the proteins in food **coagulate**. This means that they change from a liquid or semiliquid state to a drier, solid state. The longer that you **subject**, or expose, the proteins to heat the firmer and more solid they will become. For example, compare the difference in texture between a soft-cooked egg and a hard-cooked egg. If you simmer an egg for three to five minutes, you will produce a soft-cooked egg with a partly solid white and a semiliquid yolk. To produce a hard-cooked egg with both a solid white and yolk, the egg must be simmered for 8 to 10 minutes. The length of time cooked will affect the texture of the egg white and yolk.

Coagulation also occurs in meat proteins as heat is applied during cooking. Meat proteins lose some moisture as the protein becomes more solid during cooking. Long, slow cooking techniques and moderate heat will make some meats tender, flavorful, and juicy. However, using too much heat can toughen the protein in those same meats. This happens because too much moisture is lost.

Color

The cooking process also affects the color of food. For example, certain ingredients that are commonly used to cook vegetables, such as lemon juice, vinegar and baking soda, can

change the color of vegetables. There are cooking techniques, such as blanching, that can help keep the color of vegetables. (You will learn about blanching in Section 15.3)

Fruits and vegetables get their unique colors from naturally occurring pigments. A **pigment** is the matter in cells and tissue that gives them their color. Common pigments in foods include chlorophyll (green vegetables), flavonoids (red, purple, and blue vegetables), and carotenoids (yellow, orange, and red vegetables). Many foods have more than one type of pigment. Remember that the longer that fruits and vegetables are cooked, the more their color will change.

Likewise, as meat cooks for extended periods of time, moisture is extracted. The meat will lose its deep-red color as it cooks. These color changes happen at different temperatures.

As the internal temperature of meat reaches between 140°F and 160°F (60°C and 71°C), the redness decreases significantly. The same thing happens when the meat reaches an internal temperature between 168°F and 176°F (76°C and 80°C). That is why the inside of a rare steak is red, a medium rare steak is pink, and a well done steak is brownish gray. Remember, however, that using a thermometer to measure internal temperature is the only safe way to determine if meat is done.



Texture Changes When high-protein foods are cooked, their texture changes. *How can you tell which egg has been cooked longer?*

Brian Yeevin/Alamy

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Aroma

The aroma created from cooking food can be as appealing as the flavor and presentation of the final dish. Cooking techniques that use fat as an ingredient or as a way to transfer heat create an appealing aroma. **Caramelization** (lker-ə-məl-ə-zā-shən), or the process of cooking sugar to high temperatures, is what creates these pleasing aromas. As the sugar in the food turns brown, a rich aroma is produced. Caramelization can also affect the color and flavor of food.

Flavor

The cooking process also affects the flavor of food. If you have ever eaten overcooked meat or vegetables, you know that overcooking can ruin the flavor. However, if you use the correct cooking technique, you can actually **enhance**, or increase the quality of, the flavor of food. For example, if you grill meats over charcoal or woods such as hickory and mesquite, it will give them an appealing, smoky flavor. Foods that are cooked with dry-heat methods taste rich because of the caramelization that occurs. Moist cooking techniques help bring out a food's natural flavor.

The flavor of foods can also be changed during cooking by using seasonings and flavorings at different times during the cooking process. Cooking methods that use liquids rather than fats to cook can bring out flavors in a food. Slow roasting foods will bring out rich flavors. Deep-frying foods creates a unique flavor that is enhanced by the crispness of the food.

It is important to enhance the flavor of food because it increases the appeal of the food to the customer. Appealing food is one of the main factors that will bring back customers to a restaurant. If you do not choose the right cooking method for a food, all other methods to enhance flavor will be wasted.

Another way to enhance the flavor of food is to add seasonings and flavorings before, during, or after the cooking process. These seasonings and flavorings, including herbs,

Science à la Carte

Color Fade

Do you know what gives green vegetables their color? Green vegetables, such as broccoli and spinach, contain two types of the pigment chlorophyll. One type of chlorophyll is a bright bluish-green color. The other type is a yellowish-green color. Green vegetables have about four times more of the blue-green type than the yellow-green type.

To maintain the color of a green vegetable, do not overcook it. Heat from cooking damages the vegetable's cells. This allows the acids that were in the once-living cells of the vegetable to be released. Once exposed to this acid, the chlorophyll changes to a brownish-yellow color.

Procedure

To complete the following experiment, you will need four broccoli stalks, a pot with a lid, and a second pot without a lid. Bring 3 cups of water to a boil in each uncovered pot. Separate the florets, or flowers, of the broccoli. Place half of the broccoli in one pot and cover it with the lid. Place the rest of the broccoli in the other pot without a lid. Cook both pots of broccoli for 7 minutes. After 7 minutes, drain each pot and place the broccoli into two separate bowls.

Analysis

Determine which style of cooking provided a greener vegetable. Examine each bowl. Describe the color and the texture of the broccoli in each bowl. Which dish has the greener broccoli? Explain in a short summary why you think one method of cooking had a greater impact on the color change than the other.

spices, and condiments, will be discussed in more detail in Chapter 16. Not all seasonings and flavorings are used in the same way. Knowing which seasoning to add, and when to add it, is an important part of your culinary training.

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Reading Check **Explain** Why does the texture of foods toughen after prolonged exposure to heat?

Safety Check

✓ Internal Temperatures

Although you should be careful not to overcook food, it must be cooked to a minimum internal temperature to be safe. A thermometer shows the minimum safe internal cooking temperatures for various foods.

CRITICAL THINKING *What might happen if food is not cooked to the minimum internal temperature?*

SECTION 15.1 After You Read

Review Key Concepts

1. **Describe** dry cooking techniques.
2. **Explain** how cooking can affect the texture of a food.

Practice Culinary Academics

Science

3. **Procedure** Work in groups as directed by your teacher. Wash and peel several carrots and divide them into three even amounts. Cook each group using the following techniques: 1) steam, 2) roast, 3) sear and then braise.

Analysis Sample each group of carrots and evaluate the differences in texture, color, aroma, and flavor. Why are there differences? Summarize your results.

Social Studies

4. Choose a country and research common cooking techniques that are used in that country. What types of cooking methods are they? Can you predict how these techniques would affect nutritive value, texture, color, aroma, and flavor? Give a five-minute oral presentation on your findings. Use pictures to illustrate cooking techniques.

Mathematics

5. Your sous chef prepared one dozen soft-cooked eggs and one dozen hard-cooked eggs. Unfortunately, he then mixed the two batches together in one container. What is the probability that if you grab two of the eggs, both will be hard-cooked?

Math Concept Probability of Dependent Events

Events When two events are dependent (the probability of a second event depends on the outcome of the first), find the probability of each event, and multiply those probabilities together.

Starting Hint For the first selection, the probability that the egg is hard-cooked is $12/24$ (or $\frac{1}{2}$). However, when you select the next egg, remember that there will be one fewer hard-cooked egg, and one fewer egg overall.

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Dry Cooking Techniques

Reading Guide

Before You Read

Study with a Buddy It can be difficult to review your own notes and quiz yourself on what you have just read. According to research, studying with a partner for just 12 minutes can help you study better.

Read to Learn

Key Concepts

- Demonstrate dry cooking techniques.

Main Idea

Dry cooking causes moisture in food to evaporate into the air.

Dry cooking techniques include baking, roasting, sautéing, stir-frying, pan-frying, deep-frying, grilling, and broiling.

Content Vocabulary

- bake
- carryover cooking
- smoking
- roasting
- sear
- basting
- open-spit roast
- sautéing
- stir-frying
- wok
- frying
- dredging
- breading
- batter
- heat lamp
- pan-fry
- deep-fried
- recovery time
- grilling
- griddle
- broiling

Academic Vocabulary

- effect
- delicate

Graphic Organizer

Use a matrix like the one below to list the different dry cooking techniques, with a short description of each.

Dry Cooking Techniques

Technique	Description

Bake, roast, or grill foods to give them a rich flavor.

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Dry Cooking

Dry cooking techniques include baking, roasting, sautéing, stir-frying, pan-frying, deep-frying, grilling, and broiling. Do not let the word dry fool you. It is called the dry cooking technique because no moisture is directly used in the cooking process. Any moisture that comes from the food evaporates into the air. Some dry cooking techniques use oil and fat to transfer heat. Others use metal and radiation of hot air to create heat. This section will introduce you to dry cooking techniques.

Baking

Baking is a very popular dry cooking technique. Bread and chicken are foods that are commonly baked. Fish, vegetables, fruits, breads, and pastry items also can be baked.

To **bake**, you use dry heat in a closed environment, usually an oven. No fat or liquid is added to the cooking process. Any moisture that comes from food is turned into steam and evaporates into the air. This is because the food is baked uncovered.

A large food product will continue to cook for 5 to 15 minutes after you remove it from the oven. This is called **carryover cooking**, or the cooking that takes place after you remove something from its heat source. This happens because the outside of the food is hotter than the inside of the food. This **effect**, or result, continues until the temperature throughout the food becomes stable. Carryover cooking can add 5 to 15 degrees to the food's final temperature. There is no way to stop the carryover cooking that happens at the end of dry heat cooking. You must keep this effect in mind when you plan cooking times.

Smoking

Smoking is usually done with meats, but also can be done with other foods, such as nuts, vegetables, and cheeses. **Smoking** is a form of cooking that uses low heat, long cooking times, and wood smoke for flavor. Commercial smokers are usually kept at a temperature of 225°F (107°C). Smoking is done with hot coals, to which smoking wood chunks of hickory, mesquite or just about any



Roasted Foods
Roasting adds a rich flavor to meats and vegetables. *What other foods could be roasted?*

Ingram Publishing/SuperStock

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hardwood or fruitwood is added. Foods are placed on the opposite side of the smoker as the coals and wood. This keeps the food from cooking too quickly.

Roasting

Like baking, **roasting** uses dry heat in a closed environment to cook food. Foods commonly roasted include meat and poultry. These foods are placed on top of a rack that is inside a pan. This allows air to circulate all the way around the food so that it cooks evenly. In general, roasting involves longer cooking times than baking.

Carryover cooking also applies to roasting. Remove roasted foods from the oven just before they reach the desired doneness. Remember to use a thermometer to check the internal temperature of foods for safety. The carryover heat that occurs will complete the cooking process.

Searing

Roasting differs from baking in that sometimes the outside of the food product is seared. To **sear** means to quickly brown the outside of food at the start of the cooking process. Searing enhances flavors and adds color. It also helps to build body in juice drippings that can later be used to make sauces. Searing can be done two different ways: in a pan on the rangetop or in the oven.

When you sear foods on the rangetop, heat the pan, then place the food in a pan that contains a small amount of heated oil. Brown the meat on one side, and then turn the meat until all of its surfaces are browned. After this is done, place the pan in a hot oven to finish the cooking process.

When searing in the oven, place the food, such as a roast, in a pan in a 450°F to 475°F (232°C to 246°C) oven. Cook the meat for about 15 to 20 minutes, or until the outside begins to turn golden brown. Then, reduce the heat to 325°F to 350°F (163°C to 177°C) to finish the cooking process.

A TASTE OF HISTORY

1960

John F. Kennedy is elected President of the United States

1963

Julia Child's cooking show *The French Chef* debuts on TV

Cooking Through Time

Cave drawings dating back to the Stone Age show that prehistoric life centered around the gathering and preparation of food. Prehistoric people had no choice but to grill or roast their food on small open fires. During the Middle Ages, the cauldron was the main cooking pot in the kitchen. Seventeenth- and 18th-century people cooked food over fire in kettles or on spits.

Chefs such as Elizabeth David and Julia Child have made an impact on cooking history by introducing both new and historic cooking methods to the masses through their cookbooks and television shows. Although some cooking methods have evolved, others remain the same today as they were in prehistoric times.

History Application

Imagine that you are a TV news reporter doing a story on Julia Child's life and career. Research Julia Child's career and write a short biography on her life. Explain how she revolutionized the cooking world.

Some meats should be basted during the cooking process to avoid dryness. **Basting** involves moistening foods with melted fats, pan drippings, or another liquid during the cooking time.

Open-Spit Roasting

Many cooks prefer to roast food over an open fire. This is called **open-spit roasting**. To open-spit roast, place the food, usually meat such as pork, on a metal rod or a long skewer. Then, slowly turn it over the heat source. Place a drip pan under the food to catch its juices. Many commercial roasters will automatically turn the spit during the long cooking time.

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Check the internal temperature with a thermometer before you remove food from the spit. Remember that the food will continue to cook for another 5 to 15 minutes after you remove it from the heat source.

Sautéing and Stir-Frying

Sautéing (só-lā-inj) is a quick, dry cooking technique that uses a small amount of fat or oil in a shallow pan to cook foods. Sautéing is generally used with **delicate**, or fragile, foods that cook relatively quickly. These foods include fish fillets, scallops, tender cuts of meat, vegetables, and fruit. Most sautéed foods are served with a sauce.

During sautéing, you will want to seal the surface of the food. To do this, preheat a pan on high heat, then add a small amount of fat or oil. When the fat or oil is heated and nearly smoking, add the food. Do not overcrowd the pan. Doing so will lower the temperature of the food, and it will not cook properly. After the food is sealed, lower the temperature so that the food cooks evenly throughout. Foods may need to be turned in the pan while they are sautéing.

Stir-frying is a dry cooking technique that is similar to sautéing. When stir-frying, you use a wok. A **wok** is a large pan with sloping sides. Stir-fried foods require less cooking time than sautéed foods. Vegetables and tender, boneless meats are often stir-fried.

To stir-fry, place a wok over high heat, add a small amount of fat, and then add small pieces of food. Because of the wok's size and shape, it is important to constantly stir the food as it cooks.

Frying

It is hard for most people to resist crispy foods, such as fried chicken and French fries. Foods like these are prepared using a dry-heat cooking technique called **frying**. During frying, foods are cooked in larger amounts of hot fat or oil.

The outside of the food becomes sealed when it comes in contact with the hot oil

~ Small Bites ~

Pan-Frying Tip Chill cuts of meat before you pan-fry them. The outside of the meat will brown before the inside finishes cooking.

during frying. The natural moisture that is in the food turns to steam, which bubbles up to the surface. Because the outside of the food is sealed, fried foods are often moist and juicy on the inside.

Foods are usually coated before frying. To do this, foods can be dredged, breaded, or battered.

Dredging One way to prepare foods for frying is to dredge them. **Dredging** means to coat foods with flour or finely ground crumbs.

Breading Another way to add texture and flavor to fried foods is to add a **breading**, or a coating made of eggs and crumbs.

Batter Another tasty way to prepare fried foods is to batter them before frying them. This adds texture and flavor. **Batter** is a semiliquid mixture that contains ingredients such as flour, milk, eggs, and seasonings. Dip the food into the batter immediately before frying.

Tips to Follow After Frying

After food has been fried, remove it from the oil and drain it well on an absorbent surface such as paper towels. You can also add seasoning at this time. Fried foods are best served and eaten immediately after being cooked. If you cannot serve fried foods right away, they can be temporarily stored under a heat lamp. A **heat lamp** uses light in the infrared spectrum to keep food warm during holding without becoming soggy.

Pan-Frying

One way to fry food is pan-frying. To **pan-fry**, heat a moderate amount of fat in a pan before adding food. Use enough fat to cover about one-half to three-quarters of the food. The fat should not be so hot that it smokes. Instead, it should be hot enough to sizzle when food

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Dredge and Bread Food

1 Dredge the food product in seasoned, dry flour by dipping it into the flour and coating it evenly on all surfaces. Shake off any excess flour.



2 Immediately dip the food into an egg wash or other liquid. An egg wash is a mixture of beaten eggs and a liquid such as milk or water. Coat the food completely. Shake off any excess.



3 Quickly place the food into a container of dry crumbs and coat evenly. Crumbs can be made from bread, ground nuts, cereal, crackers, or shredded coconut.



is added, usually at 350°F to 375°F (177°C to 191°C).

Pan-frying does use more fat than sautéing, so it requires longer cooking times and lower heat. Because food is not completely covered by the oil during pan-frying, you will need to turn the food after one side is done to allow for even cooking throughout. Foods that are often pan-fried include chicken, potatoes, fish, and pork chops.

Deep-Frying

Another way to fry foods is to deep-fry them. **Deep-frying** means to cook foods by completely submerging them in heated fat or oil at temperatures between 350°F and 375°F (177°C to 191°C). Fried foods must be cooked until they are done on the inside. Temperature and timing on deep-fat fryers help you determine doneness. Deep-fried foods will be a golden brown color. Once deep-fried foods are done, remove them from the oil and briefly hold them

up over the oil tank so that the excess fat can drip off. Oil must be changed frequently. Heat and use can cause oil to darken, break down, and give food an off flavor. Oil can also transfer strong flavors between foods.

The most popular types of deep-fried foods are potatoes, onions, fish, and poultry. Many foodservice operations purchase foods that are already breaded and are ready to be deep-fried. Commercial fryers with fry baskets that can sit directly in the oil are commonly used.

Commercial deep-fryers have some advantages over other frying equipment:

- There is less recovery time than with stove-top pots. **Recovery time** is the time it takes for the fat or oil to return to the preset temperature after the food has been submerged.
- The life of the fat or oil is maximized if correct temperatures are used.

Grilling

Many commercial kitchens use gas, electric, charcoal, or wood-fired grills. **Grilling** is often used for tender foods that cook relatively quickly. To grill foods properly, you

must first preheat the grill. Depending on the type of food you wish to grill, brush the food lightly with oil, and then place it on the grill. Do not move the food after you place it initially. This will help create the distinctive markings of a grilled food product.

Griddle Use

Grilling can also be done on a griddle. A **griddle** is a flat, solid plate of metal with a gas or electric heat source. Griddles are commonly used to make sandwiches such as grilled cheese and breakfast items such as pancakes and eggs. Depending on the type of food that is cooked, you may want to add a little fat to the griddle to keep the food from sticking. The temperature of a griddle is about 350°F (177°C).

Food can also be grilled on a grooved griddle. This type of griddle has raised ridges. Although grooved griddles are similar in design to grills, they do not generate as much smoke as a grill. That is why food cooked on a griddle will not have the same smoky flavor as food cooked on a grill.



⌚ **Colorful Cooking** Cooking foods produces many changes in the food. *What changes occurred to this food as it cooked?*

Broiling

Broiling means to cook food directly under a primary heat source. When you broil food, the temperature is controlled by how close the food is to the heat source. Thicker foods should be placed farther from the heat source, and thinner foods should be placed closer to the heat source. This ensures that the inside and outside of the food will cook at the same rate.

Foods that are commonly broiled include vegetables, meats, and poultry. Tender foods lend themselves to being broiled. Foods are usually turned only once during cooking when they are broiled. The broiling rack may make grill marks on the food, or a heatproof

~ Small Bites ~

Seasonings Some cooks add seasonings to the meat before broiling. Do not add salt before broiling, however, because it draws out juices. This can dry out the meat.

platter may be used. Unlike a grill, broilers are heated only by gas or electricity. Additional flavors cannot be added to the food by burning charcoal or wood. Broiling uses no extra fat to cook food.

Reading Check **Compare and Contrast** How do stir-frying and sautéing differ?

SECTION 15.2 After You Read

Review Key Concepts

1. Explain how to use a griddle.

Practice Culinary Academics

English Language Arts

2. Imagine that you write an advice column for a local or school newspaper about cooking. Ask and answer two questions about using dry cooking techniques. Share your column with the class.

Science

3. **Procedure** Cook a piece of chicken and a potato. Record the temperature immediately after removing the food from the oven. Record the temperature again each minute until the food begins to cool.

Analysis Create a chart of the cooling times for each item. What do you observe about carryover cooking times?

Social Studies

4. Choose a dry cooking technique and study its development. What were the first cultures to use the technique? How has it changed since then? What cultures use the technique now? Create a two-page report to discuss your research.

Mathematics

5. To pan-fry some breaded chicken cutlets, Jody adds oil to her pan so that the oil is 1/2-inch deep. If the pan is 10 inches in diameter, how many fluid ounces of oil did Jody use?

Math Concept **Volume of a Cylinder** Calculate the volume (V) of a cylinder as $V = \pi r^2 h$, where r = the radius of the circular base, and h is the height of the cylinder. Use 3.14 for π .

Starting Hint Find the volume in cubic inches of the oil using the formula, with 0.5 inches as h and one-half the pan's diameter as r . One cubic inch = 0.554 fluid ounces, so multiply the volume by 0.554.

Sampler for Review Only

SECTION 15.3

Moist Cooking Techniques

Reading Guide

Before You Read

Preview Understanding causes and effects can help clarify connections. A cause is an event or action that makes something happen. An effect is a result of a cause. Ask yourself, “Why does this happen?” to help you recognize cause-and-effect relationships in this section.

Boil, simmer, or poach foods to add tenderness and flavor.

Read to Learn

Key Concepts

- **Demonstrate** moist cooking techniques.
- **Describe** combination cooking techniques.

Main Idea

Moist cooking involves heating food in a liquid. Sometimes moist cooking techniques are applied to food that has been partially cooked with a dry cooking technique.

Content Vocabulary

- boiling
- boiling point
- convection
- blanching
- shocking
- parboiling
- simmering
- reduce
- poach
- steaming
- braising
- deglaze
- stewing

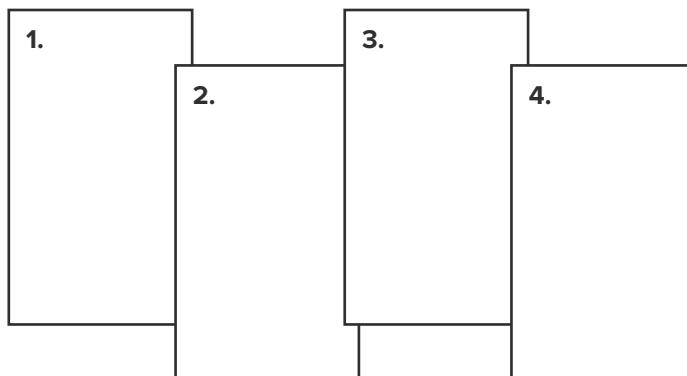
Academic Vocabulary

- submerged
- extracted

Graphic Organizer

There are four steps in stewing foods. Use a sequence chart like this one as you read to list these steps.

Steps in Stewing Foods



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Cooking in Liquid

There is more than one way to cook eggs. Some people like them to be boiled so that they are hard-cooked, while others prefer their eggs lightly poached so that they are softer in texture. Boiling and poaching are both moist cooking techniques.

Cooking food using a moist technique involves heating food in a liquid other than oil. Moist cooking techniques include boiling, blanching, parboiling, simmering, poaching, and steaming. Sometimes, a moist cooking technique is applied to foods that have already been partially cooked using a dry cooking technique. This section will introduce you to moist and combination cooking techniques.

When you cook foods in water or other liquids, foods are completely **submerged**, or covered in liquid. Boiling, simmering, and poaching involve cooking in liquid. The doneness of food will depend on the type of food that is cooked and the specific method chosen.

Boiling

Boiling is a moist cooking technique in which you bring a liquid, such as water or stock, to the boiling point and keep it at that temperature while the food cooks. The **boiling point**, or temperature at which a liquid boils, of water is 212°F (100°C) at sea level. When liquid reaches the boiling point, food can be added and cooked.

When liquid boils, a process called convection occurs. During **convection**, the liquid closest to the bottom of the pan is heated and rises to the top. Meanwhile, the cooler liquid descends to the bottom of the pan. This sets off a circular motion in the pan that keeps the food in constant motion. This motion keeps food from sticking to the pan.

Boiling cooks food quickly. However, it can be harmful to some food. The rapid circular motion of the liquid does not harm pasta, but it can break apart a tender piece of fish. Because of this, very few food items are cooked completely by boiling.



Bring to a Boil Boiling is best used for foods that are not too tender or delicate.
Why should delicate foods not be boiled?



 **Cool Down** One way to cool food immediately after blanching is to plunge it into ice water. *What should be done with food after it has been blanched?*

Blanching

Using the boiling method to partially cook food is also known as **blanching**. It is a quick way to change the flavor and keep the color in foods. Blanching is usually a two-step process:

1. Completely submerge the food in a boiling liquid and blanch, or briefly cook, it.
2. Remove the blanched food from the liquid. To make sure the food stops cooking as soon as you remove it from the liquid, briefly plunge the food into ice water. This is called **shocking**. This will completely stop the cooking process.

Remember that a blanched food item is only partially cooked. You will need a second stage of cooking to complete the cooking process. For example, you might first blanch green beans and then sauté them in butter and herbs.

Blanching has many uses. Blanching is sometimes used to:

- Simplify peeling of vegetables and fruits.
- Precook foods before they are frozen.
- Soften herbs.
- Lock in the color of foods.
- Help preserve a food's nutrients.

- Remove excess salt from ham or pork.
- Remove blood from meats.
- Remove strong flavors from meats.
- Cook food partially to prepare it for faster service later.

Parboiling

Parboiling is a moist cooking technique that is similar to blanching. In **parboiling**, foods are put into boiling water and partially cooked. However, the cooking time for parboiling foods is longer than for blanching. Recipes that include parboiling will give you the exact timing for a particular food item. For example, ribs are often parboiled before they are grilled. This tenderizes the meat and reduces grilling time.

~ Small Bites ~

Tomato Peeling You can lightly blanch a fresh tomato to make it easier to peel. You must immediately plunge the tomato into ice water after blanching so that it does not continue to cook.

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Simmering

Simmering is the most commonly used moist cooking method. It can be used to cook food items, or blanch them. Foods should be simmered until they are moist and tender. Like boiling, simmering involves cooking food in liquid. However, during **simmering**, food cooks slowly and steadily in a slightly cooler liquid that is heated from 185°F to 200°F (85°C to 93°C). The bubbles in the liquid rise slowly to the surface of the liquid, but do not break the surface.

Because of the lower temperature, not as much convection action occurs during simmering. This makes simmering a much more gentle cooking process than boiling. Foods such as yellow squash and zucchini should be fully submerged in the liquid to simmer. The advantages of simmering include less shrinkage of the food, less evaporation and better control over evaporation, and less breakup of fragile food, such as fish.

Simmering is also used to **reduce**, or decrease the volume of, a liquid. For example, you might want to simmer spaghetti sauce to make it thicker.

Poaching

Poaching is an even gentler method of moist cooking than simmering. To **poach** means to cook food in a flavorful liquid between 150°F (66°C) and 185°F (85°C). Generally, tender or delicate foods such as fish and eggs are poached in just enough liquid to cover the food. You can poach food on the rangetop or in the oven. Sometimes the poaching liquid is used to make a sauce that accompanies the food when it is served.

Steaming

Steamed vegetables are both tasty and nutritious. **Steaming** means cooking vegetables or other foods in a closed environment filled with steam, such as in a pot with a tight-fitting lid. Steam is created inside the pot when water reaches the boiling point and turns into vapor. Although the food never touches the liquid, the temperature inside the closed environment rises high enough to cook the food. Steaming is generally faster than other moist cooking techniques.



Gentle Simmer Simmering cooks foods slowly. *What are some of the advantages of simmering versus boiling?*

If pressure is added during steaming, the temperature inside the pot rises even higher. This cooks the food even faster. A pressure steamer holds steam under pressure. As the pressure increases, so does the temperature. For example, say you cook asparagus at 10 pounds of pressure per square inch (psi) at 240°F (116°C). If you increase the pressure to 15 psi, the temperature will rise to 250°F (121°C). Steamers cook foods, such as vegetables, without dissolving the nutrients.

Reading Check **Summarize** Why would you blanch a food?

Combination Cooking

Sometimes, great things happen when you combine the best of two techniques. This is the case with combination cooking. As the term suggests, combination cooking combines two techniques you have already learned: moist and dry. Two major combination techniques are braising and stewing. Braising and stewing involve both a dry and a moist cooking process. The first step for both cooking methods is

usually to brown the food using dry heat. Then, the food is completely cooked by simmering the food in a liquid.

Cooking food using a combination technique is especially useful for tough, but flavorful, cuts of meat. The combination cooking process makes the meat more tender. It is also an excellent way to prepare large pieces of less-tender meat.

Braising

Braising is a long, slow cooking process. It can make tough cuts of meat more tender. Meat is first seared and the pan deglazed before the moist cooking technique is used. To **degaze** means to add a small amount of liquid such as stock or water to a pan to loosen brown bits of food after searing or sautéing. An additional amount of stock, sauce, or water is added, and the food is cooked on top of the range or in the oven.

During cooking, braising produces a very flavorful liquid. The flavors **extracted**, or drawn out, from the food become highly concentrated. Imagine braising a pork loin. The juices from the pork are mixed with the braising liquid. The



Flavorful Liquid Braising liquid should be strained before it can be reused for sauces. *Why do you think this is?*

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braising liquid takes on the flavor of the meat's juices.

Braised foods are always served with the cooking liquid. You will want to strain, thicken,

and add salt, pepper, or other spices to the liquid before you serve it.

* HOW TO *

Braise Food

- 1 Begin by searing the food in a frying or roasting pan.



- 2 Remove the food from the pan or push it to one side. Add mirepoix or vegetables that are appropriate to the preparation.



- 3 Cook the vegetables and deglaze by adding a small amount of liquid to the pan. Stir to dissolve the browned bits of food that stick to the pan. Return the seared food to the pan if you removed it.



- 4 Add enough liquid, such as stock or sauce, to cover no more than two-thirds of the food. Cover the pan, if desired. Place the pan in a 350°F (177°C) oven, and cook the food slowly until it is fork-tender. Turn the food every 20 to 30 minutes. Braising can also be done on the rangetop over low heat.



Stewing

Stewing is another combination cooking technique. However, stewed foods are completely covered with liquid during cooking. Cooking time for stewing is generally shorter than for braising. That is because the main food item in stew is cut into smaller pieces before cooking.

Follow these steps to stew foods:

1. First, sear the food in a pan over high heat. Tender cuts of meat should not be stewed or they will become tough.
2. Completely cover the food with liquid.
3. Bring the stew to a simmer and cook until tender.
4. Add vegetables, if desired, part of the way through simmering the main food.

This will ensure that the vegetables will not be overcooked when the main food in the stew is fully cooked.

Reading Check **Explain** What are the differences between braising and stewing?

Safety Check

Burned by Steam

Take special care when you remove the lids from pots or containers that may have steam trapped inside. Always tip the lid open by lifting it away from your hand and body. Steam is at least 212°F (100°C) and can cause severe burns.

CRITICAL THINKING *Why do you think the steam is so hot?*

SECTION 15.3 **After You Read**

Review Key Concepts

1. **Explain** how to blanch foods.
2. **Describe** the braising process.

Practice Culinary Academics

Science

3. **Procedure** Browning occurs in meat when it is cooked at high heat. Cook two pieces of meat. Sear one piece, and use another cooking technique on the second piece that does not involve searing.

Analysis Compare the flavor of the seared meat with the other meat. Create a chart to record observations about the appearance and flavor. Write a short summary of why you think meat is browned before stewing or braising.

Mathematics

5. Gina can cook basmati rice $3\frac{1}{2}$ times faster in her pressure cooker than in a regular pot. If rice normally cooks in 20 minutes, what is the cooking time in the pressure cooker (to the nearest second)?

Math Concept **Working with Time** To convert decimal minutes (such as 12.43) into minutes and seconds, keep the whole number portion (as minutes), and multiply the decimal portion by 60 (which represents the seconds).

Starting Hint Find the new cooking time by dividing 20 minutes by $3\frac{1}{2}$. Convert any decimal portion of your answer into seconds by multiplying it by 60. Round to the nearest second.

English Language Arts

4. Create a poster to illustrate the process of braising foods. Use drawings and text to display each step in the process. Display your posters in the classroom.

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Chapter Summary

There are three different cooking techniques: dry, moist, and combination cooking. The cooking technique, temperature, and cooking time affect nutritive value, texture, color, aroma, and flavor. Dry techniques include baking, roasting, sautéing,

stir-frying, pan-frying, deep-frying, grilling, and broiling. Moist cooking techniques include boiling, simmering, poaching, and steaming. Combination cooking techniques include braising and stewing.

Content and Academic Vocabulary Review

1. Create multiple-choice test questions for each content and academic vocabulary term.

Content Vocabulary

- dry cooking technique (p. 376)
- evaporate (p. 376)
- moist cooking technique (p. 376)
- combination cooking (p. 376)
- coagulate (p. 378)
- pigment (p. 378)
- caramelization (p. 379)
- bake (p. 382)
- carryover cooking (p. 382)
- smoking (p. 382)
- roasting (p. 383)
- sear (p. 383)
- basting (p. 383)
- open-spit roast (p. 383)
- sautéing (p. 384)

- stir-frying (p. 384)
- wok (p. 384)
- frying (p. 384)
- dredging (p. 384)
- breading (p. 384)
- batter (p. 384)
- heat lamp (p. 384)
- pan-fry (p. 384)
- deep-fried (p. 385)
- recovery time (p. 386)
- grilling (p. 386)
- griddle (p. 386)
- broiling (p. 387)
- boiling (p. 389)
- boiling point (p. 389)
- convection (p. 389)
- blanching (p. 390)

- shocking (p. 390)
- parboiling (p. 390)
- simmering (p. 391)
- reduce (p. 391)
- poach (p. 391)
- steaming (p. 391)
- braising (p. 392)
- deglaze (p. 392)
- stewing (p. 394)

Academic Vocabulary

- subject (p. 378)
- enhance (p. 379)
- effect (p. 382)
- delicate (p. 384)
- submerged (p. 389)
- extracted (p. 392)

Review Key Concepts

2. **Compare and contrast** different cooking methods.
3. **Explain** how cooking affects a food's nutritive value, texture, color, aroma, and flavor.
4. **Demonstrate** dry cooking techniques.
5. **Demonstrate** moist cooking techniques.
6. **Describe** combination cooking techniques.

Critical Thinking

7. **Imagine** that a coworker has cooked a meal. The piece of cooked meat is tough and grayish-brown color, and the vegetables are limp and colorless. What has gone wrong during cooking?
8. **Explain** how you should prepare an extra-lean pork loin roast to avoid it becoming dry and tasteless.
9. **Imagine** that a food critic is coming to your restaurant. What would you tell your staff about cooking to ensure good flavor, nutritive value, texture, color, and aroma?
10. **Describe** the advantages of having a variety of cooking techniques on a restaurant menu. Is it possible to have too many techniques represented?

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Academic Skills

English Language Arts

11. Interpret Cooling Methods Obtain a cookbook or a cooking magazine that has at least 10 recipes. Read through the book or magazine and review the recipes. Choose 10 recipes and identify the cooking techniques used in each. For each recipe, list the cooking technique, whether it is moist or dry, and how you think the technique will affect the dish's color, texture, aroma, and flavor.

Social Studies

12. Equipment Advances Choose one cooking technique and conduct research to discover how the equipment used for that cooking method has changed over time. Create a time line with brief descriptions of the changes in the equipment used. How has the changing equipment improved that cooking technique?

Mathematics

13. Fill a Fryer Oscar has just purchased a new deep fryer for his restaurant. The fryer holds 60 pounds of cooking oil. But Oscar's containers of cooking oil on hand were measured in volume (gallons), not weight. If the oil has a density of 7.5 pounds per gallon at room temperature, and a 4-gallon container of oil costs Oscar \$38.75, how much will it cost to fill up the fryer?

Math Concept **Weight vs. Volume** A liquid's weight and volume are related to each other by a concept called density, which is the ratio of its weight to its volume at a particular temperature. Use the formula $\text{weight} = \text{density} \times \text{volume}$.

Starting Hint First, determine the total volume of oil that Oscar will need by rearranging the formula above to solve for volume. Use the total weight and density given in the problem. Then, find the number of containers that Oscar will need by dividing the total volume by 4. Multiply the number of containers by the cost per container.

Certification Prep

Directions Read the questions. Then, read the answer choices and choose the best possible answer for each.

14. Which of the following uses a combination cooking technique?

- a. braise
- b. stir-fry
- c. poach
- d. grill

15. At what temperature does water begin to boil?

- a. 100°F
- b. 132°F
- c. 200°F
- d. 212°F

Sharpen your test-taking skills to improve your kitchen certification program score.

Test-Taking Tip

Building your vocabulary will help you take tests. Practice new vocabulary and concepts with other students until you understand them all.

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Real-World Skills and Applications

Self-Management Skills

16. Work with Time Constraints Imagine that you have only 30 minutes to prepare a meal. Your main ingredient will be chicken. What cooking methods could you use to prepare the chicken in time? Which methods would retain the most nutritional value? What could you add to the meal to increase its nutritional value? Write a one-page report to describe your cooking method choices.

Communication Skills

17. Watch a Cooking Show Watch a cooking show. Look for the particular cooking technique that the host uses. Take notes on what the host is doing and what you learned about that technique from the show. Give a five-minute oral presentation to the class to explain what you learned about the cooking technique. Turn in your notes to your teacher.

Technology Applications

18. Create a Web Site As a class, plan and design a Web site that explains the different cooking methods. Make sure it contains basic instructions for each method. If possible, create recipes for a few or all of the techniques that you describe on the Web site. You may also want to photograph the steps of the techniques to illustrate the instructions.

Financial Literacy

19. Cost Ingredients Ordering chicken precooked will cost you \$3 per pound of chicken. Ordering uncooked chicken and having the staff cook it will cost you \$2 per pound, including labor. How much money will you save having the staff cook the chicken if you need 25 pounds?

Culinary Lab

Cook a Meal

20. Use Cooking Techniques Working in teams, during this lab you will prepare a three-course meal that involves dry, moist, and combination cooking techniques.

A. Choose your courses. Follow your teacher's instructions to form teams. As a team, determine which five menu items you will prepare, and which cooking technique you will use for each food item. When you choose cooking techniques, consider nutritive value, texture, color, aroma, flavor, appearance, and cooking time.

B. Gather ingredients. Determine the list of ingredients needed to prepare the menu items. Gather those ingredients at your work station.

C. Make a schedule. Develop a workflow and preparation time schedule for team members to follow when they prepare menu items.

D. Cook and serve your meal. Once your schedule is set, cook your menu items and serve the meal to the other teams. On a piece of paper, create a rating chart to evaluate each team's meal.

Use the culinary skills you have learned in this chapter.

Create Your Evaluation

Create a chart to evaluate food items for texture, color, aroma, flavor, and appearance. Use this scale:
1 = Poor; 2 = Fair; 3 = Good; 4 = Great
Discuss amongst yourselves and then with the class how each item rated in the different categories and which technique produced the best food.

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Chefs and Cooks

Chefs and cooks determine the fate of a restaurant's reputation.

Whether a restaurant prides itself on home-style cooking or international dishes, it relies on the talent and expertise of its chefs and cooks. Depending upon the type and size of the establishment, chefs usually supervise the work of cooks.

Chefs and cooks rely on their judgment and experience as they constantly taste, smell, and season food being prepared in their kitchens. They must be able to work independently, as members of a team, under extreme pressure, and in crowded spaces. They make sure the food tastes good and is visually appealing.

**Ryan Marcoux,
Sous Chef**



Q **Describe your job.**

A I am sous chef for Sel de la Terre, but recently my job description has become a little confusing because I am helping Sel de la Terre open a new restaurant. So, right now, I cook 50% of the time, but once we open the new location, I will cook 80% of the time.

Q **What is your typical work day like?**

A I go in at noon and work with the invoices, recipes, and menus. I meet with the head chef for the new location. I also meet with the wait staff to talk about our menu changes and prix fix for the day. During service, I do back expo and swing, which means I call the tickets to the hot line and help whoever is in the weeds.

Q **Why did you choose your career?**

A First, I love food. Second, I think some people are born to be in the kitchen, and I am one of them. Being a chef is a lifestyle. It takes a certain breed to do what we do.

Q **What education did you receive?**

A I earned a degree in Culinary Arts. This helped me with my fundamental knowledge of cooking but more importantly, it helped me understand how to manage a kitchen.

Q **How did you find your current job?**

A The Nicas family, who owns The Castle Restaurant, gave me my start. I completed a four-year apprenticeship, working there 40-plus hours a week while in school. This enabled me to show my commitment to this industry and gave me a solid résumé and great recommendations.

Q **What skills are most important to your job?**

A I think time management and organization are the most important skills because these help you focus on details, and details are what make the difference.

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Career Ingredients

Education or Training	Most employers require a culinary degree, and restaurant experience is usually a necessity.
Academic Skills Required	English Language Arts, Mathematics
Aptitudes, Abilities, and Skills	In-depth knowledge of the food industry, good eye-hand coordination, strong interpersonal and leadership skills, planning and organizational skills, ability to work independently and as a team, and ability to handle pressure.
Workplace Safety	Basic kitchen safety, sanitation, and food handling rules must be followed.
Career Outlook	Openings will be plentiful for years to come as the foodservice industry expands.
Career Path	Advancement depends on skill, training, and work experience. Chefs with supervisory experience may advance to executive chef.

Career Pathways

Executive chefs	Highly-skilled chefs with years of experience. Their duties include hiring and supervising cooking staff, planning menus, and ordering food.
Sous chefs	Also known as area chefs, they are in charge of running the kitchen. They assist the executive chef and make sure that the staff is cooking, portioning, and garnishing food properly.
Sauce chefs	Prepare fish, stews, sautéed dishes, braised or roasted entrees, and sauces.
Garde manger chefs	Cold-food chefs who prepare appetizers, salads, ice carvings, buffets, and cold meat preparations.
Roast cooks	Specialize in oven-roasted, baked, fried, and grilled items.
Vegetable cooks	Cooks who specialize in pastas, vegetables, and soups.
Pastry chefs	Trained in the art of making hot, cold, and frozen pastries and breads.
Restaurant chefs	Known as line cooks, they are responsible for à la carte dishes.
Tournants	Cooks who take the place of absent staff members.

In a very large foodservice operation, the following could also be present: **soup cook, legume cook, fish cook, hors d'oeuvre cook, buffet cook, butcher, preserver cook, grill cook, fry cook, and staff cook.**

Critical Thinking What classes have you taken in school that might help you prepare for a career as a chef or cook?



Culinary certification programs include cooking techniques. Develop a recipe for a pasta dish, making sure it is both creative and healthful. The dish should be visually appealing, taste good, and incorporate a variety of ingredients.

COMPETITION

PRACTICE

Imagine you have been hired as a new vegetable cook, and the executive chef has asked you to prepare a new pasta dish. Prepare the dish you developed for the Get Certified practice. All preparation must be done within a time period specified by your teacher. Evaluate your efforts based on the following rating scale:

1 = Poor; 2 = Fair; 3 = Good; 4 = Great

Judge your menu on:

- Whether you finished your dish on time.
- The flavor of your dish and the ingredients you included.
- The visual appeal of your dish.

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Local and Seasonal Foods

Many restaurant customers want meals that include fresh, local ingredients and foods. Using local, seasonal ingredients can make your menu more attractive.

My Journal

If you completed the journal entry from page 373, refer to it to see if you have used any local or seasonal ingredients in your cooking. Add any additional notes about how you can use these ingredients to spice up your culinary creations.

Project Assignment

In this project, you will:

- Choose an ingredient or food that is raised or produced in your area or region.
- Conduct research about the ingredient or food you have chosen.
- Identify and interview someone about your ingredient or food.
- Prepare a presentation to share what you have learned with your class.

Applied Culinary Skills Behind the Project

Your success in culinary arts will depend on you skills. Skills you will use in this project include:

- ◆ Selecting ingredients.
- ◆ Choosing recipes.
- ◆ Understanding moist and dry cooking methods.
- ◆ Understanding safety and sanitation.
- ◆ Choosing seasonings, flavorings, and herbs.

English Language Arts Skills Behind the Project

The English Language Arts skills you will use for this project are writing, interviewing, and speaking skills. Remember these key concepts:

Writing Skills

- ◆ Use complete sentences.
- ◆ Use correct spelling and grammar.
- ◆ Organize your interview questions in the order you want to ask them.

Interviewing Skills

- ◆ Record interview responses and take notes.
- ◆ Listen attentively.
- ◆ When you transcribe your notes, write in complete sentences and use correct spelling and grammar.

Speaking Skills

- ◆ Speak clearly and concisely.
- ◆ Be sensitive to the needs of your audience.
- ◆ Use standard English to communicate.



USDA photo by Bill Tappening

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Step 1 Choose and Research Your Ingredient

Choose and research one ingredient or food that is produced in your area or region. Write a summary of your research to:

- Describe the characteristics of your ingredient or food.
- Explain how, when, and where your ingredient or food is typically produced.
- Identify and lists two recipes that use your ingredient or food.
- Describe moist and dry cooking methods for your chosen ingredient or food.
- List any safety and sanitation concerns.
- Review seasonings, flavorings, and herbs that work well with your chosen ingredient or food.

Step 2 Plan Your Interview

Use the results of your research to write a list of interview questions to ask a local chef about your ingredient or food. Your questions might include:

- How would you describe the characteristics of the ingredient or food?
- What do you think are the best methods for preparing the ingredient or food?
- In what recipes have you used the ingredient or food?
- Would you choose this ingredient or food over other similar ingredients or foods?

Step 3 Connect with Your Community

Identify a local chef you can interview about your ingredient or food. Conduct your interview using the questions you prepared in Step 2. Take notes during the interview and write a summary of the interview.

Culinary Project Checklist

Plan

- ✓ Select and research your topic and summarize your findings
- ✓ Plan and write your interview questions.
- ✓ Interview a chef and write a summary of the information you learned.

Present

- ✓ Make a presentation to your class to discuss the results of your research and your interview.
- ✓ Invite students to ask any questions they may have. Answer these questions.
- ✓ When students ask you questions, demonstrate in your answers that you respect their perspectives.
- ✓ Turn in the summary of your research, your interview questions, and the summary of the interview to your teacher.

Step 4 Create Your Report

Use the Culinary Project Checklist to plan and give an oral report to share what you have learned with your classmates.

Step 5 Evaluate Your Culinary and Academic Skills

Your project will be evaluated based on:

- Content and organization of your information.
- Proper use of standard English.
- Mechanics—presentation and neatness.
- Speaking and listening skills.



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