Level 2

FOUNDATIONS

OF RESTAURANT MANAGEMENT & CULINARY ARTS

SECOND EDITION

Teacher's Companion

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Preface

Our objective with this program is simple yet significant:

Provide an industry-driven curriculum that prepares students for a career in restaurant and foodservice management.

To achieve that objective, *Foundations of Restaurant Management & Culinary Arts, Second Edition* was meticulously developed by the National Restaurant Association with input and contributions from countless representatives from both industry and education. That balanced perspective is important in helping students make the connection between classrooms and careers.

The student textbooks offer many distinguishing features such as:

- Comprehensive coverage of culinary and management topics
- An industry-infused approach
- Relevant and timely topics from leadership skills to sustainability
- Content aligned to certificates and ProStart program opportunities
- Certificate opportunities that meet funding requirements
- Supplements and technologies that help educators do more in less time

We offer a pedagogy that is fortified by 21st Century Learning themes and objectives:

- Critical thinking and problem solving
- Communication and collaboration
- Creativity and innovation
- Global awareness
- Health literacy

Thank you for considering *Foundations of Restaurant Management & Culinary Arts, Second Edition*!

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Chapter 1
Teacher's Companion

CHAPTER OVERVIEW

This chapter introduces students to basic marketing concepts and explains how to create a marketing plan. The chapter also discusses market segmentation, promotions, and public relations.

CHAPTER OBJECTIVES

1.1 Define the term marketing.

1.2 Describe the components of the traditional marketing mix.

1.3 Describe the contemporary marketing mix.

1.4 Describe the elements of a marketing plan.

1.5 Define target market, and explain why it is important to a business.

1.6 Identify the parts of a SWOT analysis.

1.7 Identify various elements of a promotion mix.

1.8 Recognize different types of sales promotions.

1.9 List the benefits of public relations.

1.10 Identify opportunities for public relations.

ADVANCE PREPARATION

Review	• Chapter 1, pages 6–23 • Unit case study, "Reaching Your Customers," pages 4–5
Contact	• A restaurant or foodservice professional who specializes in marketing
Prepare	• A sample of market communications from a variety of restaurant or foodservice operations • Sample promotional items from a variety of restaurant or foodservice operations • A sample SWOT analysis for a variety of topics, and vetted sample videos that show SWOT analysis • A graphic organizer for the key terms

CHAPTER BREAKDOWN

PAGE 8 INTRODUCTION

Discuss

- Why is marketing an important part of the restaurant and foodservice industry?
- How do marketing campaigns target specific demographic groups? What examples are particularly directed toward teenagers?

PAGES 8–9 MARKETING OVERVIEW

Customized Instruction

Learning disabled	Make a list of items that you think serve as marketing. Use things like Instagram and Snapchat to create your list. Which are you favorites? Write a few sentences to describe the items on your list.
Academically gifted	Perform research, then write an essay comparing and contrasting marketing and advertising.
ELL	Find images that represent marketing in the foodservice and hospitality industry. What do the images say to you? What do you think they are trying to accomplish.

Reinforce and Review

- For a business to profitably provide a product or service, there must first be a market for that product or service.
- Marketing and advertising are not the same thing; rather, advertising is a component of a successful marketing strategy.
- Marketing includes determining what products and services to offer, how to position them in the marketplace, how to promote them to potential buyers, how to price them so people will buy them, and how to deliver the products and services to the purchasers.

Discuss

- In what ways does marketing involve communication?
- How do you engage in marketing in your daily life?

Vocabulary Review

- **Market:** A group of people, also known as customers or guests, who desire a product or service.
- **Marketing:** The process of communicating a business's message to its market/guests.

Homework Activity: Literacy

Trends

Identify a particular market trend that you think is important. What promotions or menu items do local restaurant and foodservice operations offer as part of this trend?

Write a brief essay on this trend, local participation, and why you think this trend is currently popular.

PAGES 9–11 | **BASIC MARKETING CONCEPTS**

Customized Instruction

Learning disabled	Review at least three social media profiles for operations in the foodservice and hospitality business. What do you like about them? What do you dislike? Make a list for each profile. Answer the following for each profile you review: Generally, restaurants and foodservice operations want to use social media for three main things: 1. To build a community of people who like and support their products, services, and operation 2. For promotion 3. To gain guest feedback and manage guest service Do the profiles accomplish these things?
Academically gifted	Research the contemporary marketing mix and the three elements: product-service mix, presentation mix, and communication mix. Create a marketing campaign to deliver the information found during your research to present to the class. Focus on using marketing techniques to create your presentation. Make sure to explain how the contemporary mix differs from the traditional marketing mix.
ELL	Find or create an ad for a product that you love. Using the framework for an ad you might find in a magazine, identify the four Ps in the ad: product, price, promotions, and place. Find images to represent each of the items that make up the contemporary mix: the product-service mix, the presentation mix, and the communication mix. Create a graphic organizer for each concept.

Reinforce and Review

- The marketing concept puts marketing into, and sometimes in charge of, areas of the company and the product development process that used to belong exclusively to other specialties.
- The conventional marketing mix involves the four Ps: place, product, price, and promotion.
- The contemporary marketing mix expands the four Ps to include other elements that help distinguish a product or service in an era of fierce competition.
- Employing an effective communication mix is crucial to monitoring, maintaining, and improving an operation's relationship with the market it serves.
- Restaurant and foodservice operations need to keep up with market trends and be aware of changing consumer needs.
- Video: Basic Marketing Concepts: This animation demonstrates some basic marketing ideas discussed in this section.

Discuss

- Identify some advantages and disadvantages to the marketing-concept approach to business.
- Identify a current marketing campaign. What are its four Ps? Do they provide all the information that potential consumers need when deciding whether to purchase the good or service? Why or why not?
- Is the contemporary marketing mix only relevant to the restaurant and foodservice industry? Why or why not?
- What products and services are important to you as a consumer? How do you make decisions about what to purchase and from whom to purchase it?
- What are the most effective ways in which a restaurant or foodservice operation could communicate its message to you? Why?

Vocabulary Review

- **Marketing mix:** The combination of all the factors that go into creating, developing, and selling a product.
- **Contemporary marketing mix:** Modification of the standard marketing model, which uses the "four Ps," to reflect the complexities and challenges operations now face in today's highly competitive restaurant and foodservice industry; it consists of three primary elements: product-service mix, presentation mix, and communication mix.
- **Product-service mix:** Element of the contemporary marketing mix that consists of all of the food and services offered to guests.
- **Presentation mix:** All the elements that make an operation look unique and contribute to its identity, including the layout, size, type of furniture used, decorations, color scheme, lighting, and service uniforms.
- **Aesthetic:** The way an operation looks and feels to the guests.
- **Communication mix:** All of the ways an operation actively tries to reach, or communicate with, its desired guests, including through advertising, as well as through its menu, guest survey requests and other guest feedback requests, local community outreach, and Internet social networking sites.

Knowledge Check Answers (Page 11)

1. The primary purpose of marketing is communicating a business's message to its market.
2. The three primary elements of the contemporary marketing mix are the product-service mix, the presentation mix, and the communication mix.
3. The four Ps are place, price, product, and promotion.
4. Operations use social media to build a community of people who like and support their products, services, and operation; for promotion; and to gain guest feedback and manage guest service.

PAGES 12–13 **MARKETING PLAN**

Customized Instruction

Learning disabled	Create a poster to show the five steps in a marketing plan. Find or create images that help to define the main components.
Academically gifted	Design and execute a marketing plan for your classroom based on a product sale, like selling Halloween-themed cookies or candies in October or pies during Thanksgiving. Show the research and planning for each of the five steps in a detailed report, and create promotional materials to present to the class.
ELL	Search for videos on the Internet related to marketing plans. Use a search engine to find information, images, and videos for each step: 1. Research the market. 2. Establish objectives. 3. Develop a marketing strategy. 4. Implement an action plan. 5. Evaluate/modify the action plan as needed. Describe your findings for each of the five steps in a short response.

Reinforce and Review

- The five components of the marketing plan are researching the market, establishing objectives, developing a market strategy, implementing an action plan, and evaluating and modifying the action plan as needed.
- Gathering information must always be the first step in developing a marketing plan.
- Research can not only provide information about local and regional characteristics and competitors, but can also help a company determine its own strengths and weaknesses.
- Market research forms the foundation on which management will make all subsequent decisions.

- Both organizational goals and the timelines for achieving these goals help to shape the operation's marketing strategy.
- Essential Skills: Monitoring a Promotional Scheme lists how to monitor a promotional scheme. What are some promotional schemes that would attract you to a particular restaurant or foodservice operation?
- Video: Marketing Plan Components: For a video on marketing plan components, please go to *Textbooks.Restaurant.org/Videos*.

Discuss

- How frequently should a business conduct market research? Why?
- In what ways are an organization's goals related to its vision and mission statements?
- How can the development of a marketing strategy be used to strengthen employee relationships and enhance career skills?
- How frequently should the action plan be modified? Should managers always respond quickly to customer feedback? Why or why not?

Vocabulary Review

- **Marketing plan:** A list of steps an operation must take to sell a product or service to a specific market; every marketing plan will have five main components: (1) research the market, (2) establish objectives, (3) develop a marketing strategy, (4) implement an action plan, and (5) evaluate/modify the action plan as needed.

PAGES 14–15 **MARKET SEGMENTATION**

Customized Instruction

Learning disabled	Use a search engine to find images related to the following key terms: • Target market • Guest-driven • Mass marketing • Target marketing What did you find? What target market are you a part of? Have you ever been mass marketed?
Academically gifted	Research SWOT more in depth. Write an essay about the SWOT analysis and the variety of ways it can be used.
ELL	Find images or videos that help to define SWOT analysis. Write down notes on your findings. In small groups, choose an item, and perform a SWOT analysis on a topic of your choice.

Reinforce and Review

- The selection of the target market is an important element of an operation's marketing strategy.
- Identifying a target market enables an operation to avoid mass marketing and instead focus on target marketing.
- Understanding the target market enables an operation to provide the products and services that are needed by a particular group of people and to focus its marketing resources toward that group of people.
- Performing a SWOT analysis enables management and marketers to focus on the key issues affecting an operation.
- Video: Market Segmentation: For a video on market segmentation, please go to *Textbooks.Restaurant.org/Videos*.

Discuss

- Why is it important for operations to be customer-driven?
- Does a customer-driven model mean that the customer is always right? Why or why not?
- How is a target market different from a market segment?
- When should a SWOT analysis be performed? How frequently should these analyses be conducted?

Vocabulary Review

- **Target market:** The people an operation intends to pursue as guests.
- **Guest-driven:** Making sure that satisfying the wants and needs of the guest drives the marketing strategy.
- **Mass marketing:** Marketing that treats everyone in the market as having the same needs and wants.
- **Target marketing:** Marketing that treats people as being different from each other and tries to make a focused appeal to a distinct group of guests.
- **SWOT analysis:** The process of identifying an operation's strengths, weaknesses, opportunities, and threats as a simple way for the management of an operation to understand its current situation and take advantage of the opportunities open to it; also called a situation assessment.

Knowledge Check Answers (Page 15)

1. The marketing plan includes: research the market, establish objectives, develop a marketing strategy, implement an action plan, and evaluate/modify the action plan as needed.
2. Target marketing appeals to the people an operation intends to pursue as customers. Mass marketing is a marketing strategy that treats everyone in the market as having the same wants and needs.
3. A SWOT analysis (also called a situation assessment) identifies a restaurant or foodservice operation's strengths, weaknesses, opportunities, and threats.

Homework Activity: Writing

SWOT

Perform a SWOT analysis of yourself. Be realistic about each group of factors. How can this self-knowledge help you to achieve your goals?

Describe your analysis in a one-page report.

Homework Activity: Writing

Segmentation

Each person has thousands of characteristics that make him or her unique: hair color, hobbies, and favorite foods are just a few of these. Many of these characteristics can be used by marketers to sell specific goods and services. They identify market segments to help them make focused appeals to specific groups of consumers and potential consumers.

Think about where you live and what you like to do. If a marketer were to look at you, what market segments might he or she put you into? Why?

PAGES 16–18 | **MARKET COMMUNICATIONS/PROMOTIONS**

Customized Instruction

Learning disabled	The promotional mix can consist of any or all of the following: • Advertising • Public relations • Sales promotions • Direct marketing • Personal selling Use images or videos to help describe and define the elements of the promotional mix. Create a graphic organizer with your findings. Create or find examples of sales promotions and typical promotional materials, using the lists found on pages 17 and 18.
Academically gifted	Create a plan to communicate with the target market for your culinary goods. Create a promotional mix package with plans for each of the following: • Advertising • Public relations • Sales promotions • Direct marketing • Personal selling

(continued)

ELL	Find examples of the types of sales promotions listed on page 17. Collect images of each example into a graphic organizer. Create a plan for promotional materials to be used on Instagram and Twitter. Make sure to include guidelines for images and hashtags.

Reinforce and Review

- The promotional mix can consist of any or all of the following: advertising, sales promotions, personal selling, public relations, and direct marketing.
- Advertising can be conducted through multiple media and, if effective, can be a powerful communication tool.
- An operation's identity might be tied to specific sales promotions.
- Personal selling might be the best way to solidify an operation's credibility and identity in a competitive market.
- Building good relations with the community can help an operation gain favorable publicity and enhance its image.
- Video: Market Communications/Promotions: For a video on market communications and promotions, please go to *Textbooks.Restaurant.org/Videos*.

Discuss

- What types of market communications are appropriate for what target markets? Why?
- What are some popular sales promotions? What makes them successful?
- What local restaurant and foodservice operations do a good job of building community relations? How do they do this?
- Which of the five components of the promotional mix do students think is most important? Why?

Vocabulary Review

- **Promotional mix:** The ways in which an operation goes about the process of communicating with its market; the promotional mix can consist of any or all of the following: advertising, sales promotions, personal selling, public relations, and direct marketing.
- **Advertising:** Paying to present or promote an operation's products, services, or identity; advertising can be conducted through multiple mediums, such as television, radio, newspapers, storefronts, and the Internet.
- **Sales promotions:** Limited, or short-term, incentives to entice guests to patronize an operation; for example, offering two-for-one entrées.
- **Personal selling:** Personal interactions between staff and guests that work to communicate an operation's message and solidify an operation's credibility and identity in the market.

- **Public relations (PR):** The process by which an operation interacts with the community at large in order to build good relations with the community, gain favorable publicity, and enhance the operation's image; for example, sponsoring local sports teams or holding a charity event.
- **Direct marketing:** Making a concerted effort to connect directly with a certain segment of the market; for example, direct mail or emails, telephone calls, website feedback or interaction, and even table-side feedback.
- **Cooperative sales promotions:** When two or more sponsors develop complementary promotions or offer complementary promotional materials; for example, a restaurant hands out coupons for free admission to a sporting event, and the sports arena hands out coupons for a free appetizer at that restaurant.

Homework Activity: Literacy

Steaking a Claim

You own a steak house in a large city, where there is a great deal of competition. Identify and describe a sales promotion that you think would attract more customers. To whom would this promotion primarily appeal? Why do you think it would be a success? Describe your promotion and why it would succeed.

Homework Activity: Literacy

See Food

The management of a local seafood restaurant has asked you to develop a sales promotion based on the upcoming wild salmon season. Develop a sales promotion and identify at least three types of promotional materials you will use to promote the event.

PAGES 18–20 **PUBLIC RELATIONS: ENGAGING THE COMMUNITY**

Customized Instruction

Learning disabled	Make a list of items that you associate with community relations. What items do you associate with media relations? Write a few notes on each topic from your list.
Academically gifted	Design a plan for a community relations event that benefits a charity or organization of your choice and the culinary arts in collaboration with your classroom. Research programs around the country that provide a community service in combination with culinary arts. Check out *https://www.secondhelpings.org/* as a starting point. Could you design a program like this for your community? Include a response statement with your action plan.
ELL	Create a graphic organizer to define the key terms from this section. Source images or videos that help to show the action within the definition. • Community relations • Media relations • Press release • Press kit • Media vehicles

Reinforce and Review

- The purpose of public relations is to generate publicity.
- A major benefit of engaging in local affairs is that people respond positively to local support.
- Media relations and community relations should be an important part of the promotional mix.
- Community relations provide an opportunity to "give back" to the local area.
- The benefits of positive community relations include creating a positive image within the community, building credibility within the community, building relationships with community leaders, creating a network with other restaurant and foodservice professionals, generating positive publicity, and promoting the operation.
- Once marketers have identified community relations opportunities that align with their marketing plans, they can determine how to become involved in a way that generates good publicity.
- Proactive community engagement helps shape an operation's identity within the community and can affect people's likelihood of patronizing the operation.

Discuss

- Is it true that "There is no such thing as bad publicity"? Why or why not?
- How can community support help a restaurant or foodservice operation thrive? Can operations without such support succeed?
- What community relations opportunities might be appropriate for what types of restaurant and foodservice operations to participate in? Why?
- Explain the importance of good communication skills and thorough employee training in developing a public relations program.
- How do restaurant and foodservice operations determine what information to include in their press kits?

Vocabulary Review

- **Community relations:** Interacting with the people in the local area to create awareness of and trust for an operation; examples include activities such as hosting charity events, giving tours, and sponsoring sports teams as a way to "give back" to the community while also providing benefits for both a restaurant and its management.
- **Media relations:** The relationships that marketers maintain with media outlets, which in this context includes newspapers, magazines, television, and radio.
- **Press release:** A brief presentation of promotional information written to sound like a news article; also called a news release.
- **Press kit:** A packet of information given to media representatives to answer questions they might have about a business or organization; also called a media kit. Press kits also may be given to prospective guests, employees, or investors.
- **Media vehicles:** Particular publications, radio stations, etc., used by a business to deliver advertising messages to its target audience.

Knowledge Check Answers (Page 20)

1. The elements of the promotional mix include advertising, sales promotions, personal selling, public relations, and direct marketing.
2. Sales promotions include special pricing (coupons), frequent shopper programs, premiums (reduced-price merchandise), special events, samples, and contests and sweepstakes.
3. Community relations is the ways in which an operation interacts with the people in the local area to create awareness of and trust in an operation. Media relations are the relationships that marketers maintain with media outlets.
4. A press kit is a packet of information given to media representatives to answer questions they might have about a business or organization.

Homework Activity: Writing

Full-Court Press

Write a press release about a real or imaginary event in which a restaurant or foodservice operation participates. Pose as the marketer for that establishment. The press release should be at least one page long and should answer the "Five Ws and How" questions.

PAGE 21 CASE STUDY FOLLOW-UP ANSWERS: "REACHING YOUR CUSTOMERS"

1. The marketing plan includes five steps: research the market (to identify the strengths and weaknesses of the operation, of their competitors, of the products and services of their own operation and of their competitors), establish objectives and goals (within a set time frame), develop a marketing strategy (ways to achieve the goals), implement an action plan, and evaluate/modify the action plan as needed. Students should refer back to pages 12–13.
2. Market segmentation is the process of breaking down a large market into smaller groups of customers. Every operation should be customer driven; that is, making sure that satisfying the wants and needs of the customer drives the marketing strategy. It is important to know your target market because it allows you to get in front of your likely customers. If Carl and Leo want to open a high-end steak house, they probably need to target higher-income customers and people who entertain high-end clients. Students should refer back to pages 14–15.

PAGE 22 CHAPTER ACTIVITIES ANSWERS

- **Can You Hear Me Now?:** Students should logically explain the advantages and disadvantages of the communication methods they select. Students can refer back to page 10 for ideas.
- **SWOT It!:** Students should refer back to pages 14–15 for the details of what is involved in a SWOT analysis. Student answers will vary, but they should cover every part of the acronym "SWOT."

- **The Four Ps:** Students should select a menu and a pricing formula that they consider appropriate and explain their choices. At the price they've set, how would the item do at their favorite place? What might account for the difference in price? (Larger quantities at lower prices, etc.)
- **A Marketing Plan:** Students should develop a cohesive and coherent marketing plan for the chosen restaurant category, taking care to follow the five steps of a marketing plan, as found on page 12.
- **Market Yourself:** Students will need to do online research to find marketing and public relations firms. They should discuss the latest trends in advertising and marketing through social media. Students should refer back to pages 18–20.
- **Beating the Local Competition:** Students will need to explain some ways in which their proposed restaurants can establish competitive advantages. Researching other local restaurants, as well as relevant community factors, is an important part of determining the ways in which a new restaurant can stand out from the competition.

PAGE 23 EXAM PREP ANSWERS

1. B (p. 8)
2. C (p. 12)
3. B (p. 16)
4. D (p. 14)
5. A (p. 14)
6. C (p. 17)
7. A (p. 17)
8. B (p. 18)
9. A (p. 19)
10. A (p. 20)

Chapter 2
Teacher's Companion

CHAPTER OVERVIEW

This chapter looks at the menu. After describing the various types of menus, the chapter discusses how to build and analyze a menu as part of the greater marketing scheme.

CHAPTER OBJECTIVES

2.1 Explain the importance of the menu to a foodservice operation.

2.2 Describe à la carte, table d'hôte, California, limited, du jour, and cycle menus.

2.3 Organize the information on a menu.

2.4 Explain principles of menu layout and design.

2.5 Explain the purposes of a menu sales mix analysis.

2.6 Define profitability and target margin.

2.7 Classify menu items according to their popularity.

2.8 Compare the food cost percentage methods and the contribution margin method for menu pricing.

ADVANCE PREPARATION

Review	• Chapter 2, pages 24–41 • Unit case study, "Reaching Your Customers," pages 4–5
Contact	• A graphic designer
Prepare	• A variety of types of menus • Food pricing information and invoices • Recipes to cost with your pricing

CHAPTER BREAKDOWN

PAGE 26 INTRODUCTION

Discuss

- What restaurant or foodservice operations have menus that are particularly attractive to students? What elements are especially appealing?
- What would make a menu unappealing? Why?

PAGES 26–27 MENU OVERVIEW

Reinforce and Review

- The most important interaction consumers have with a given operation is through the menu.
- The most basic function of a menu is to tell customers what an operation has to offer, but it also presents an opportunity to distinguish an operation's items from those of the competition.
- The menu also informs customers about what the operation offers, sells products, and creates an identity for the operation.
- The description and placement of each menu item helps determine a customer's impression of each dish and therefore what he or she will order.
- The menu's presentation—the choice and color of font, the quality of paper, and the number of items offered—communicates information about the operation's identity.
- Video: Menu Overview: For a video on menu overview, please go to *Textbooks.Restaurant.org/Videos*. This video describes the content on pages 26–27, on how a menu functions as a tool of marketing and communication in three different ways.

Discuss

- How does the menu communicate both with potential customers and staff members?
- How can managers ensure that an operation's menu will help it fulfill its objectives?
- In what ways does a menu provide a competitive advantage?
- How might the message communicated by a multiple-page menu be different from the message communicated by a single-page menu? Why?
- Why is it important to have both an informative menu and a well-informed staff?

PAGES 28–29 **MENU TYPES**

Customized Instruction

Learning disabled	Using a menu from your favorite restaurant, make a list of things that you think are for planning purposes and things that are to communicate to the customer. Make a few notes to explain your list.
Academically gifted	Write two types of menus—one with little description, and another with elaborate descriptions. Write an essay comparing and contrasting the two, while focusing on the three functions of the menu: informing guests, selling products, and creating identity.
ELL	Find a basic menu with little to no description. Rewrite the menu to include more descriptions, but also to include additional descriptions. Use a variety of adjectives and include images of each item.

Reinforce and Review

- In the United States, du jour menus are commonly used to offer daily specials and might be presented verbally by staff members.
- Cyclical menus give chefs and managers the flexibility to offer new dishes, ingredients, and cooking techniques at certain intervals throughout the year.
- Fixed menus are often coupled with du jour menus to offer both variety and consistency.
- California menus enable operations to serve multiple market segments simultaneously.
- Prix fixe menus offer multiple courses for a set price. Prix fixe menus increase the check total while providing a discount on the food items ordered, benefiting both operation and guest.
- Table d'hôte menus offer a variety of options and multiple courses for a fixed price.

Discuss

- For guests, what are the advantages and disadvantages of an à la carte menu? Why? For restaurant employees, what are the advantages and disadvantages of an à la carte menu? Why?
- How can the use of either a du jour menu or a cyclical menu reinforce the message that a particular operation serves the freshest seafood in the community?
- Why might an operation choose to combine menu types or offer multiple menus? How would this work?
- How can offering a limited menu help a restaurant or foodservice operation become more efficient in all of its activities?
- How can the consistency offered by a fixed menu help reinforce the operation's identity?
- What types of restaurants are most likely to offer California menus? Why?
- What message does a prix fixe menu send? Why?

Vocabulary Review

- **À la carte menu:** This menu prices each item separately, and nothing comes with anything else; for example, a meal such as steak, potatoes, and a vegetable will have separate prices for each item, and they need to be ordered individually.
- **California menu:** This menu lists all meals available at any time of day, which accommodates a wider variety of guests who may differ in lifestyle and work schedules; guests can choose whatever they want whenever they want it—for example, breakfast at dinner time. Diners that are open 24 hours a day might use a California menu.
- **Cyclical menu:** With this menu, chefs or managers change items after a certain period of time (daily, weekly, monthly, etc.) depending on their objectives and the target market; for example, an operation might serve four different menus that correspond to the four seasons.
- **Du jour menu:** This menu simply lists the menu items that are available on a particular day ("du jour" is a French term that means "of the day"), often presented as a "Daily Specials" menu in the United States; it can be an insert in the standard menu, written on a blackboard, or described verbally by the service staff.
- **Fixed menu:** This menu offers the same items every day, with the advantage that guests know what to expect every time they return; many chefs work with a fixed menu to offer guests consistency, but then supplement the fixed menu with a du jour menu to offer variety.
- **Limited menu:** A menu that typically offers only a few items, which means fewer ingredients, making it easier to keep track of costs, inventory, and pricing.
- **Limited time offer (LTO) menu:** Menu with items that are only offered for a short period of time, allowing for the marketing of seasonal food or introduction of new menu ideas and concepts; LTOs are most popular with quick-service and casual-dining operations, offering a low-risk way to test new ideas while increasing guest loyalty and keeping interest.
- **Prix fixe menu:** Both casual and formal operations use this type of menu, which offers guests multiple courses for a single set price, ensuring a higher check total by bundling multiple courses together while also offering the guest a discount on that higher total; for example, a choice of appetizer, full entrée with sides, and a dessert might be offered for one price, and that price is often slightly lower than if each course or item were purchased separately.
- **Table d'hôte menu:** This type of menu, frequently seen at banquets, is similar to a prix fixe menu in that it bundles various elements of the menu into one package; for example, such a menu might present—in advance—four meals, and each would include a number of courses and possibly even beverages, all for one price.

Customized Instruction

Learning disabled	Create your own menu posters using the types of menus listed in Table 2.1.
Academically gifted	Read the article listed in the link provided to the *New York Times* on using psychology to entice diners. Write a summary of the article and include a response with your opinions on the matter. *http://www.nytimes.com/2009/12/23/dining/23menus.html* A version of this article appeared in print in the New York Times on December 23, 2009, on page D1 of the national edition with the headline: "In Search of a Formula to Entice Mind, Stomach and Wallet," by Sarah Kershaw. (Accessed March 25, 2017.)
ELL	Using the types of menus listed in Table 2.1, search online for examples of each. Write a few notes on what you see in each menu, then point to the areas on the menu that reflect the descriptions provided in Table 2.1.

In-Class Activity: Literacy

Menu Mania

Working in small groups, consider the menu shown in Figure 2.3 on page 30. Does it give you a clear picture of the restaurant's identity? Why or why not?

Building on the current menu, eliminate some lunch items and replace them with others of your choice. How have your choices either strengthened the restaurant's identity or changed it altogether? If your choices have changed the identity, what is the restaurant's new image? Each group should share its work with the class to discuss the importance of the menu in shaping a restaurant's public face.

PAGE 30 **ORGANIZING A MENU**

Reinforce and Review

- Most menus organize foods according to the order in which they are usually eaten.
- Variations in these categories depend on what an operation offers and the image it wishes to promote.
- Menus should vary tastes, textures, and seasoning methods to attract as many potential customers as possible.
- Menus, no matter how many or how few dishes they offer, should be characterized by balance and variety.
- Dessert choices should be based on customers' tastes and on past sales.

Discuss

- Which courses could be grouped into a single category? Why?
- What other categories might a menu include that could help an operation differentiate itself from the competition?

- Why should foods within a major classification, such as appetizers or entrées, be prepared using a variety of cooking methods?
- How many different entrées should a fine-dining restaurant offer? How many should a family-style restaurant offer? Why?

Knowledge Check Answers (Page 30)

1. The menu functions in three ways: informing customers about what the operation offers, selling products, and creating identity.
2. The different types of menus are à la carte, du jour, cyclical, limited, fixed, California, prix fixe, and table d'hôte.
3. Most menus are organized according to the order in which they are usually eaten.

Customized Instruction

Learning disabled	Find three different menus online. Do they list their ingredients in a particular order? Describe what you see, and how the menus are organized.
Academically gifted	Locate a fine dining menu with some description. Brainstorm how you believe the chef cooks and creates these dishes, including cooking times and methods. Write a response to explain how you believe the chef organized the menu.
ELL	Find at least three images for each of the following menu categories: • Appetizers • Soups • Salads • Sandwiches (sandwiches can be offered before or after salads) • Entrées • Vegetables • Desserts • Beverages Then, create a poster that places the items in the proper order, like on a menu.

Homework Activity: Writing

Designing Menus

If you were to open a restaurant, how would you design your menu? Explain your choices of medium, layout, color, font, and art. How would these reinforce your identity and attract your target market? Write a one-page essay describing your menu design and discussing how it fits your overall marketing plan.

PAGES 31–34 CREATING A MENU

Reinforce and Review

- A menu should reflect the operation's character and goals, but it should also reflect a realistic understanding of what the kitchen can produce in an efficient and cost-effective way.
- In the planning phase of menu creation, managers and chefs must consider the physical layout of the facility, staff skills, ingredient availability, the target market's wants and needs, the target market's expectations, and the profit margin.
- An operation's physical layout often determines the kind of menu that the chefs will be most capable of producing efficiently.
- When planning a menu, availability of the desired ingredients at an appropriate price should be considered.
- Management and staff should place the target market's wants and needs above their own desires when planning a menu.
- Well-designed menus are pleasing to read, easy to understand, and clearly express the identity and character of the operation as a whole.
- Five elements to consider when designing a menu include medium, layout, color, font, and art.
- Essential Skills: Planning a Menu describes the process for planning a menu. How can chefs and managers ensure balance and variety in the menu?

Discuss

- What information do planners need to develop a profitable menu?
- Why is menu design so important to an operation's image and success?
- How are these elements of menu design also used on other promotional materials? How can these other materials reinforce the identity presented by the menu?
- What colors do students associate with which restaurant or foodservice operations? Why? How does this connect to the operations' images?
- What are some other ways in which an operation can use art to reinforce its identity?

Vocabulary Review

- **Profit:** Describes the amount of money remaining for an operation after expenses, or costs, are paid.
- **Margin:** The difference between the amount of money left over from the sale of food and beverages and the cost of preparing them and paying for other overhead expenses, like rent and heat.
- **Target margin:** The margin of profitability an operation is aiming for.
- **Menu boards:** A menu written on a board or wall—such as in chalk on a blackboard—that is visible to all the patrons in a dining room.

- **Spoken menu:** Situation where servers memorize the menu and relay it verbally to guests, which can help personalize the menu and create a more intimate feel for the operation as a whole.

Customized Instruction

Learning disabled	For both LD and ELL: Create a graphic organizer with images or screenshots to describe the steps of the planning and designing phases in creating a menu, using the information on pages 31–34.
Academically gifted	Perform research on current trends in menus for a specific target market, like young people ages 18–30, or teens ages 14–18. Design a menu that targets the market, focusing on the design phase.
ELL	Write and deliver a spoken menu of your choice. Present to the class, or film a video and present that to the class.

Homework Activity: Science

The Science Behind Color

How can color affect human behavior? The study of color psychology seeks to answer this question, looking into the ways in which preferences, behavior, and choices are affected by the colors we see. Because marketers know that color plays a role in perception, they use different colors for different purposes and to project different images.

Research the ways in which color can affect preferences and write a one-page report discussing your findings and explaining how marketing can capitalize on this information.

Homework Activity: Writing

Negative Space

Negative space is the empty space left around artwork or text. It helps emphasize the image, drawing the eye to a particular place.

How is negative space used in menu design? Explain how negative space can be used to highlight a particular menu item or category, increasing its sales. Discuss your findings in a one-page paper.

PAGES 34–35 **MENU SALES MIX ANALYSIS**

Reinforce and Review

- One way management can gauge performance is by examining sales volume and sales volume percentage.
- The sales mix analysis compares menu items in terms of sales and profitability, determining which are most frequently ordered and which earn the most money.
- Menu engineering can help managers make decisions about which menu items to leave alone, which to increase or decrease in selling price, which to promote, and which to eliminate.

Discuss

- Do all menu items that have a high sales volume earn money for the restaurant or foodservice operation? Why or why not?
- Can menu items with relatively low sales volume earn money for the operation? Why or why not?

Vocabulary Review

- **Sales mix analysis:** An analysis of the popularity and profitability of a group of menu items to determine which items are most popular and which contribute the most money to expenses and profit; the results determine whether managers need to make changes in menu pricing, content, or design. To be effective, the analysis should be done at least four times per year.
- **Menu engineering:** Process that systematically breaks down a menu's components to analyze which items are making money and which items are selling, so that managers know which menu items to leave alone, which need an increase or decrease in price, which to promote, and which to eliminate.
- **Sales volume:** The number of times an item is sold in a time period; generally, managers sort the sales of items by category (appetizers, entrées, etc.).
- **Sales volume percentage:** Comparing the number of each menu item sold to the total number of items sold on the entire menu in the same time period; allows managers to express a particular menu item's sales as a percentage of total sales.

Customized Instruction

Learning disabled	Research the terms listed below using the image function on the search engine. What images did you find? Create a graphic organizer to help define those items. Include notes on your findings. • Sales mix analysis • Menu engineering • Sales volume • Sales volume percentage
Academically gifted	Work with the school foodservice director to review the sales volume of particular items. Use the data in the report to determine the sales volume percentage.
ELL	Using your school lunch menu, make a survey to track the popularity of certain items. Give the survey to students during lunch, asking them to rate items. Tally the results to rank the popularity. Work with your foodservice director to create a sales mix analysis to perform menu engineering. Compare your survey results with the sales mix to determine popularity.

Homework Activity: Science

Menu Engineering

The concept of menu engineering isn't strictly limited to the restaurant and foodservice industry: Any industry that offers a range of goods or services to its clients can use menu engineering to increase profitability.

First, research the concept of menu engineering to learn more about its applications in the non-foodservice world. Then identify an industry or a company that you think would benefit from the use of menu engineering and explain why. Write a one-page report discussing your findings.

PAGES 35–39 **PRICING THE MENU**

Reinforce and Review

- Menu prices have two main roles: They provide information to customers and they determine profitability. Menu prices not only tell customers how much particular items cost, but also indicate important information about quality levels, ambiance, and other characteristics of the operation.
- The price of a menu item must account for all the costs involved in producing and serving that item, including food, labor, and overhead.
- The contribution margin method uses operation-wide data to determine a dollar amount that must be added to the food cost of each major item to establish the menu price.
- Stars should be located in a highly visible area of the menu to increase orders. Stars should be tested occasionally for price rigidity, because they are likely to be less price sensitive than other menu items.
- Plow horses may be highly price sensitive, so increasing the price might lead to a significant drop in orders; if only slightly profitable, these items should be removed from the menu, despite their popularity.
- If a particular menu item is an image maker or signature dish, hold its current price as long as possible to avoid alienating customers.
- Two ways to reduce demand for a plow horse are moving the item to a lower profile position on the menu and slightly reducing its portion size.
- One solution to a puzzle is decreasing its price. Another tactic is to place it in a more favorable position on the menu. Even though a puzzle is unpopular, it makes a lot of money; take steps to increase sales and turn the item into a star.
- Dogs should be eliminated where possible, although the key ingredients can be kept in inventory for special requests. Dogs can often be turned into puzzles with price increases.
- Essential Skills: Pricing the Extras discusses how to calculate the Q factor. Why is it important to consider the Q factor when determining food costs?
- Video: Classifying Menu Items. For a video on classifying menu items, please go to *Textbooks.Restaurant.org/Videos*.

- Video: Pricing Menu Items. For a video on the methods for pricing menu items, please go to *Textbooks.Restaurant.org/Videos*. This video will define the food percentage method and the contribution margin method, from page 37.
- Video: Methods for Pricing Major Menu Items. For a video on pricing major menu items, please go to *Textbooks.Restaurant.org/Videos*.

Discuss

- How do student expectations of a restaurant or foodservice operation vary according to the operation's menu prices? Is this reasonable? Why or why not?
- What role does the operation's target market play in its menu pricing?
- How will menu prices vary, depending on the method management uses to determine the prices?
- What is the most appropriate method for determining menu prices? Why?
- What factors are involved in the decision to use one method of pricing a menu and not another?
- How does an item's location on the menu affect its popularity?

Vocabulary Review

- **Stars:** Menu items that are both popular and profitable; they are the celebrities of the menu, the highest-priced stars, and may be less price sensitive than any other items on the menu.
- **Plow horses:** Menu items that are popular but less profitable; these items are often an important reason for a restaurant's popularity, so changes in price or portion amount should be considered with care.
- **Puzzles:** Menu items that are unpopular but very profitable; as a result, the number of puzzles on a menu should be limited. If sales of a puzzle item can be substantially increased without decreasing the price, the item could easily become a star.
- **Dogs:** Menu items that are unpopular and unprofitable, and that should be eliminated if possible and replaced with more popular items; some items in the dog category may have market potential and may be converted to puzzles by increasing prices.
- **Food cost percentage method:** Pricing method that sets the percentage of the menu price that the food cost must be, and then calculates the price that will provide this percentage using the following formula: Item food cost ÷ Food cost percentage = Menu price. Because food cost percentage is dependent on the costs of the food and its preparation within the restaurant or foodservice operation, an accurate food cost percentage will be different for each menu category: appetizers, salads, entrées, signature dishes, specials, desserts, beverages, etc.
- **Contribution margin method:** A pricing method that uses operation-wide data to determine a dollar amount that must be added to each major menu item's food cost, either by using the same contribution margin for all menu items or calculating separate contribution margins for different menu categories. There are two steps to the formula: (1) (Total nonfood cost + Target profit) ÷ Number of guests = Contribution margin; (2) Contribution margin + Food cost = Menu price.

- **Q factor:** The total cost of food items that guests do not order but receive anyway, such as salt and pepper on the table, bread and butter or olive oil provided, ketchup, jelly packets, etc. This cost is usually factored into the price of each entrée on the menu and is calculated as follows:
  - List all the possible food provided to guests for "free."
  - Determine how much of each item would be used by a typical consumer (for instance, 1 ounce of butter or ⅛ teaspoon of salt).
  - Calculate the cost of each item based on the average portion used.
  - Once the cost of each serving of each item is determined, add them all together. This total is the Q factor.
  - When costing entrées, add the Q factor as an ingredient in each.

Knowledge Check Answers (Page 39)

1. Planning includes the physical layout of a facility, skill of personnel, availability of ingredients, target market's wants and needs, target market's expectations, and profit margin. Design includes medium, layout, color, font, and art.
2. Menu engineering is the systematic breakdown of a menu's components to analyze which items are making money and which are selling well.
3. The four menu categories are stars, plow horses, puzzles, and dogs.

Customized Instruction

Learning disabled	Create a graphic organizer with images, screenshots, or videos to define the following key terms: • Stars • Plow horses • Puzzles • Dogs • Food cost percentage method • Contribution margin method • Q factor
Academically gifted	Interview the foodservice director to determine which items would fall under the category of Q factor. How does the director account for these items? Provide a brief report with an overview of the interview, a list of the Q factor items, and a graph to show how to calculate the cost of those items, using pricing from the foodservice director.
ELL	Search for videos using the following key terms: • Stars • Plow horses • Puzzles • Dogs • Food cost percentage method • Contribution margin method • Q factor Take notes on what you see, and create a graphic organizer with descriptions of the videos by the definitions of each term from the book, using pages 35–39.

Homework Activity: Science

Feeding Back

Feedback is the use of information about some past event to influence similar events in the future. Feedback is an important concept in the restaurant and foodservice industry, but it is also relevant throughout the natural and social sciences.

Select a branch of science that interests you, such as biology or economics. Explain how feedback plays a role in this field in a one-page report.

Homework Activity: Math

Lunch Is Served

During today's lunch service at Jimmy's Café, the three most popular dishes were chicken-fried steak (25 orders at $10 apiece), cheeseburger (20 orders at $8 apiece), and Reuben sandwich (18 orders at $7.50 apiece). One hundred guests were served, and the restaurant took in $900 on the sale of food alone.

How much does the average guest spend on food? ($9.00)

What percentage of revenue was earned on each of the three best-selling items? (Steak, 27.78 percent; cheeseburger, 17.78 percent; Reuben, 15 percent)

What was the average menu price of the other items on the menu? ($9.60)

Homework Activity: Math

Q-ing Up for Breakfast

In a given week, your breakfast restaurant provides the following items for "free": 40 lemons ($0.20 apiece), 300 ramekins of homemade jam ($0.12 apiece), and 8 ounces of homemade hot chili paste ($0.95). During this time, 400 entrées are served.

What is the average portion of each item? (Lemon, 1/10 of a lemon; jam, 75 percent of a ramekin; hot chili paste, 0.02 ounce)

What is the cost per average portion of each item? (Lemon, $0.02; jam, $0.09; hot chili paste, $0.02)

What is the Q factor? ($0.13)

Homework Activity: Math

Voluminous Volume

Mako's restaurant is open five days per week and offers a cyclical menu that currently offers six entrées. This week, she sold 80 portions of lamb, 60 of chicken, 57 of pork, 28 of mushroom, 74 of beef, and 36 of shrimp. Entrée revenues were $5,025.

For each entrée, what was the average sales volume per day? (Lamb, 16; chicken, 12; pork, 11.4; mushroom, 5.6; beef, 14.8, shrimp, 7.2)

For each entrée, what percentage of the week's sales volume did it represent? (Lamb, 23.9 percent; chicken, 17.9 percent; pork, 17 percent; mushroom, 8.4 percent; beef, 22.1 percent; shrimp, 10.8 percent)

What is the average price per entrée? ($15)

PAGE 40 CASE STUDY FOLLOW-UP ANSWERS: "REACHING YOUR CUSTOMERS"

1. Student responses will vary but should accurately describe menu analysis and engineering and the ways in which to use these techniques to increase profitability.
2. The menu helps plan an operation's goals and helps communicate those goals to the operation's target market. Menus are sales tools that help managers assess the operation's strengths and weaknesses. The menu is the best marketing tool available for a restaurant or foodservice operation.

PAGE 40 CHAPTER ACTIVITIES ANSWERS

- **Lots of Menus:** Students should refer back to pages 28–29 to review the types of menus and choose three for their paper. Students should consider profitability and the menu as a marketing tool.
- **Making Money:** Refer to page 31, Physical Layout of the Facility. Planners must take the physical layout, or space, of the actual operation into account when they design a menu. For example, planners must take into consideration the size of storage facilities, preparation and cooking areas, and the service and dining areas. An operation's physical layout often determines the kind of menu that chefs will be most capable of producing efficiently. An operation might not succeed if planners put out a menu that the chefs cannot produce efficiently.

  Internet search engines will help students find a variety of equipment and design resources, as well as up-to-date pricing. Refer to Activity 2.9 in the student Activity Guide for the framework to perform the menu classification analysis.
- **Can You Make a Profit?:** Students should describe the selected menu items, develop and cost appropriate recipes, and determine an appropriate selling price based on one of the six menu pricing methods discussed in the chapter. Food percentage method: *Item food cost ÷ Food cost percentage = Menu price; Item food cost ÷ 0.25 = Menu price.*

  Note: See the chapter 2 Activity Guide for a worksheet for students to perform the calculations. Answers should be based on the local pricing of ingredients.

- **Targeting Teens:** Students should be able to explain and defend their menu selections and prices, referring to the Expectations of the Target Market section on page 32, as well as using the design guidelines listed on pages 32–33.
- **How Do You Do It All?:** Review a list of questions from each student, then focus the activity into a group activity where one person may be called on a speakerphone or a speaker may be invited to the class. Arrange for the speaker to receive the questions ahead of time, to have answers prepared. Student responses will reflect the answers given, as well as any additional writing rubrics introduced.
- **Making a Case:** Refer to the sections titled Menu Sales Mix Analysis and Pricing the Menu on pages 34–39 for concepts that could be included in a student proposal. Main concepts are: menu engineering, sales volume, sales volume percentage, classifying menu items, and checking the pricing on menu items in a variety of methods for accuracy.

PAGE 41 EXAM PREP ANSWERS

1. C (p. 28)
2. A (p. 37)
3. B (p. 28)
4. D (p. 37)
5. C (p. 26)
6. D (p. 30)
7. A (p. 32)
8. D (p. 34)
9. A (p. 32)
10. D (p. 29)

Chapter 3
Teacher's Companion

CHAPTER OVERVIEW

This chapter reviews milk and milk products, cream, butter and butter substitutes, cheese, and eggs.

CHAPTER OBJECTIVES

3.1 Describe dairy milk and milk alternatives and their fat content.

3.2 Identify the different forms of cream and their fat content.

3.3 Identify different forms of cultured dairy products and their fat content.

3.4 Differentiate between butter and butter substitutes, and recognize the characteristics of each.

3.5 Identify the varieties and characteristics of cheese, and give examples of each.

3.6 List the characteristics of eggs, and identify ways to keep them safe.

3.7 Prepare eggs using a variety of cooking methods.

ADVANCE PREPARATION

Review	• Chapter 3, pages 46–75 • Unit case study, "Culinary Exploration," pages 44–45
Contact	• Grocer, deli, or cheese shop
Prepare	• Ingredients for the various cooking labs and demonstrations

CHAPTER BREAKDOWN

PAGE 48 **INTRODUCTION**

Discuss

- Ask students whether they eat breakfast before school.
- Why is breakfast the most important meal of the day?

PAGES 48–50 DAIRY MILK AND MILK ALTERNATIVES

Reinforce and Review

- Not too many people die of undulant fever (Brucellosis) in the United States today because dairy products are pasteurized. Although undulant fever is no longer a threat due to the advances in food science and food safety, if pasteurization practices were abandoned, the disease could become a threat again.
- Homogenization is not done for safety, but for convenience and mouthfeel.
- Lactose is the sugar found in milk.

Discuss

- Ask, "If you drink milk, can you tell the difference between whole milk and skim without seeing the label?" If the students respond positively, ask them how they can tell.
- What is the difference between lactose intolerance and a casein allergy?

Vocabulary Review

- **Pasteurization:** Process in which milk is heated to kill microorganisms that cause spoilage and disease without affecting its nutritional value.
- **Homogenization:** Process in which milk is strained through very fine holes to break down fat and then is blended into one fluid.
- **Lactose intolerance:** A common condition that is digestive and is a negative reaction to many cultured dairy products, including milk.
- **Casein:** A protein, found in milk, to which some people have an allergic reaction.

Customized Instruction

Learning disabled	Find videos to show the difference between the pasteurization process and the homogenization process. Make a list of items that you observed.
Academically gifted	Research the controversy involved in the "black market" sales of unpasteurized milk. What are the laws? Why do people choose unpasteurized milk? Write a report discussing both sides, and present to the class. Research the best way to create dishes for those with lactose intolerance. Using the plant-based milks, research recipes; or research how to make the proper substitutions to a recipe calling for a dairy-based milk. Create a conversion table for the latter.
ELL	Create a graphic organizer to show the different characteristics and common recipe uses for the different types of milks. For example, show a photo of flan next to the description for condensed (sweetened) milk. Allow students to make the connections that help to connect the content with their experiences or research.

PAGES 50–51 CREAMS

Reinforce and Review

- Cream contains far more fat than milk.
- The type of cream used is based primarily on its fat content.

Discuss

- Ask students if they are familiar with the types of cream listed in Table 3.3.
- Can students taste the difference between the types of creams listed in Table 3.3?

Vocabulary Review

- **Cream:** Dairy liquid that contains far more fat than milk.

PAGES 51–52 CULTURED DAIRY FOOD ITEMS

Reinforce and Review

- Cultured means adding bacteria to ferment the lactose. This gives a tangy flavor to sour cream, yogurt, and buttermilk.
- Probiotic refers to a dietary supplement containing live bacteria that is taken orally to restore beneficial bacteria to the body.

Discuss

- What happens to milk during fermentation?

Vocabulary Review

- **Fermentation:** Process of adding bacterial cultures to milk—usually lactic acid bacteria, or lactobacillus—and then heating the mixture to around 110°F (43°C) for several hours. The bacteria eat the sugar (lactose) in the milk, which lowers the pH level of the mixture. The low pH level causes the "sour" taste associated with yogurt, sour cream, and buttermilk. Fermentation changes the flavor and extends the shelf life of the food.
- **Probiotic:** Refers to a dietary supplement containing live bacteria (as lactobacilli) that is taken orally to restore beneficial bacteria to the body.

Customized Instruction

Learning disabled	After performing the whipped cream lab from the Activity Guide, "accidentally" make butter by allowing the cream to whip past the stage of whipped cream. Research the butter-making process and write a few sentences describing what happened.
Academically gifted	Research a variety of probiotic supplements. How does this relate to the probiotics that are found in cultured dairy products? Include research in medical studies that relate to this topic, in a presentation to the class.
ELL	Search for videos that show the process of fermentation. Take notes and write a response based on your research.

PAGES 52–53 RECEIVING AND STORING MILK, CREAM, AND CULTURED DAIRY ITEMS

Reinforce and Review

- All milk and milk products should be stored at 41°F (5°C) or lower and handled using the FIFO method.
- Any milk or milk product that has passed its use-by or expiration date should be thrown away.

Discuss

- What is the FIFO method?
- Why should the FIFO method be used for milk and milk products?

Customized Instruction

Learning disabled	Create a poster to show the process of receiving and storing dairy items.
Academically gifted	Research the FDA website for additional information on the extended shelf life for certain dairy products. Present your findings and any additional questions in a brief report.
ELL	Make a video that shows the proper procedure for receiving and storing dairy items.

PAGES 53–54 BUTTER AND BUTTER SUBSTITUTES

Reinforce and Review

- Butter's appealing flavor comes from milk fat and milk solids.
- Margarine does not contain milk fat, so it has a different flavor.
- Some margarine has milk solids or even some butterfat added for flavor, but then it is no longer true margarine.
- Margarine and butter have the same amount of fat and calories.
- The fat in margarine might be more heart-healthy than the fat in butter.
- Butter is usually more expensive than margarine.

Discuss

- Ask the students if they can taste the difference between butter and margarine.
- Have the students read and compare the labels of butter, whipped butter, and spreadable butter.

Vocabulary Review

- **Smoke point:** The point at which an oil or fat begins to burn.
- **Butter substitute:** Any alternative used to replace butter in a recipe. Examples include margarine, olive oils, coconut oil, and soy-based oils, which are all used to avoid cholesterol, but not fat.

Customized Instruction

Learning disabled	Research the public and professional opinion on salted versus unsalted butter. What are your findings? Make a graphic organizer to present the information.
Academically gifted	Perform research on the debate regarding whether butter should be stored at room temperature or under proper conditions according to regulations (in a cooler below 41°F, or 5°C). Research and present your findings.
ELL	Research how to churn butter. Make a graphic essay to show and tell how the process works.

PAGES 54–56 CHEESE

Reinforce and Review

- Many cheeses are begun by curdling milk with an enzyme called rennet. The whey remains unfermented. Other cheeses are begun by curdling milk by friendly bacterial fermentation, which makes the whey sour.
- Each type of cheese has a flavor and texture that is unique.
- Bacterial cultures usually are responsible for the particular characteristics of a cheese.
- Cultures might grow best in certain locales, which is why certain cheeses are made only in certain regions.
- Other cheeses could be made elsewhere, but the cultures are carefully guarded as trade secrets.
- Essential Skills: Considerations in Storing Cheese.

Discuss

- Perhaps the students have had grilled cheese sandwiches or macaroni and cheese made with processed cheese-food products. Do they have opinions about how processed cheeses taste compared to natural cheeses?
- Can the students identify different melting or mouthfeel characteristics of processed cheese products and natural cheeses?

Vocabulary Review

- **Whey:** The watery part of milk that is separated from the curd solids in the process of making cheese.
- **Curdling:** The process of separating milk's solids from its liquid in order to make cheese. The proteins, or curds, that form are then usually processed in some way to make a particular type of cheese.
- **Unripened:** Types of cheese, also called fresh cheeses, that include cream cheese and cottage cheese. These cheeses are soft and have a high moisture content.
- **Ripened:** Describes types of cheese that are aged with the modification of added ripening agents, which give the cheese its unique features, such as taste and texture. Some cheeses are ripened by external bacteria put into curds (e.g., Brie, bleu, Roquefort, Camembert). Others are ripened by bacteria naturally present in the curds (e.g., Swiss, Havarti).
- **Processed cheese:** Cheese made by grinding, blending, and forming one or more natural cheeses, with emulsifiers to help make the product uniform. Processed cheese is also pasteurized to prevent it from aging. It can have many flavors, including port wine, herbed, and plain processed (such as American). The taste is usually mild compared to aged cheese.

Knowledge Check Answers (Page 56)

1. Condensed milk tastes richer and sweeter than evaporated milk. It is made from whole milk by removing 60 percent of the water and then sweetening with sugar. Condensed milk is used in baking when richness and sweetness are desired. Evaporated milk is made from milk by removing 60 percent of the water. It has a slight cooked flavor from its canning process. It is used in baking to help bring richness without excess moisture.
2. Milk should be received at 45°F (7°C) or lower. All milk and milk products should be labeled Grade A. Milk should be stored at 41°F (5°C) or lower. Always use the FIFO method.
3. Creams with more than 30 percent fat are stable when whipped.
4. The three basic parts of cheese are water, fat, and protein.
5. Homogenization is the blending of fat uniformly throughout milk. Pasteurization is the heat processing to kill microbes. Fermentation is when bacterial cultures are added to milk. Probiotic refers to a dietary supplement containing live bacteria that is taken orally to restore beneficial bacteria to the body. Margarine is made of vegetable oils and animal fats with added flavoring, colors, preservatives, and vitamins. For pasta filata (Italian for "spun paste"), curds are stretched and pulled under warm whey, giving them a plastic texture. They may be stored in brine. Flavor ranges from mild to sharp, salty, sweet, and buttery.

Customized Instruction

Learning disabled	Make a graphic organizer for Table 3.5 on page 55, Varieties of Cheese. Include the name and characteristics, as well as found or created images for the examples. Make another column to place your own opinions or tasting notes, for those you have tried.
Academically gifted	Research how to make fresh mozzarella. Create a visual *mise en place* plan and presentation to show classmates how to make fresh mozzarella. Demonstrate all preparation and planning steps. If possible, research where and how to purchase the curds required—pasta filata—for an in-class demo.
ELL	Research images and videos for each variety of cheese listed in Table 3.5 on page 55. Create a graphic organizer or poster to show the characteristics and examples.

In-Class Activity: Literacy

Poetry Corner

In 1987 a large slab of ancient cheese was found in a peat bog in Ireland. It was 1,400 years old and brave people tasted it. They did not get ill, but it didn't taste very good. It probably tasted like a peat bog.

Have the students do some quick online research about this story. Do not give them the details.

This cheese was not found in the Irish county of Limerick. However, have the students compose a limerick-style poem about it (G-rated). Have the students share their poems with one another in a lighthearted poetry reading format.

Definition of limerick (from Webster's dictionary): a light or humorous verse form of five chiefly anapestic verses of which lines 1, 2, and 5 are of three feet and lines 3 and 4 are of two feet with a rhyme scheme of *aabba*

PAGES 56–61 **EGGS**

Reinforce and Review

- Most commercially sold eggs are white chicken eggs. Chicken eggs are also available in brown, green, blue, and pink. White eggs come from white chickens, and brown eggs come from brownish chickens.
- The color of the shell has nothing to do with egg quality, nutritional value, or flavor
- Most of the eggs in your supermarket come from the following breeds of chickens: the White Leghorn, the Rhode Island Red, the New Hampshire, and the Plymouth Rock.
- Eggs are checked at the farm processing plant for slight cracks and problems. This process used to be done one egg at a time by a farmer looking at each egg in front of a candle. This old technique is no longer used, but the process is still called "candling."
- Essential Skills: Cracking and Opening an Egg lists the steps to cracking and opening an egg.
- Essential Skills: Separating Egg Whites and Yolks lists the steps for separating egg whites and yolks.

Discuss

- What are the market forms of eggs?
- What are the various egg sizes?

Vocabulary Review

- **Albumen:** The white of an egg.
- **Chalazae:** The membranes in an egg that hold the egg yolk in place.

Customized Instruction

Learning disabled	Search for images or videos that show the process of how eggs are graded and what each grade looks like. Describe your findings in a short response.
Academically gifted	Research the information available on cage-free, free-range, local, and other advertising that refers to egg color (local brown eggs). Is this an actual thing, or an advertising technique? What are the differences between the conditions during production, where the eggs come from, and the color? Are they connected to the grading process? Present an overview of the opinions found online, and write a statement either proving or disproving the statements with concrete primary sources or evidence.
ELL	Research the different forms of eggs found in Table 3.6. Make a graphic organizer that helps to show the information the table is presenting, focusing on how the products are most commonly used.

In-Class Activity: Science

Put Humpty Dumpty Together Again

As individuals or in groups, have the students research and become "expert answerers" for one of these questions. When each student or group presents findings to the class, the entire topic will have been covered.

- Why do eggs have a reputation for being high in cholesterol? Are they a high-cholesterol food?
- Have there been efforts to develop a low-cholesterol egg? Have they been successful?
- How are these eggs produced? Are they a product of genetic engineering? Or are they solely a product of the type of feed given to hens? Are they from a particular breed of chicken?
- What are the students' ideas about the business marketing potential for this type of egg?
- Do the students think that low-cholesterol eggs would sell well in a restaurant? Would this type of egg provide a business opportunity for a restaurant?

Write or rework questions as desired to suit your classroom. Have students present their findings to one another.

PAGES 61–69 COOKING EGGS

Reinforce and Review

- Eggs are part of many favorite and famous restaurant menu items.
- Some guests will come to a restaurant simply to have eggs that are cooked to order.
- Guests might be very particular and specific with their instructions for how they want their eggs prepared.
- Essential Skills: Simmering or Hard Cooking Eggs in Shell lists the steps in hard cooking eggs.
- Essential Skills: Baking Eggs lists the steps in baking an egg.
- Essential Skills: Cooking Shirred Eggs lists the steps in cooking a shirred egg.
- Essential Skills: Poaching Eggs lists the steps in poaching an egg.
- Essential Skills: Scrambling Eggs describes how to scramble eggs.
- Essential Skills: Making a Fried Egg describes how to fry an egg.
- Essential Skills: Rolled Omelet describes how to make a rolled omelet.
- Essential Skills: Flat Omelet (Frittata) describes how to make a frittata.
- Essential Skills: Soufflèed Omelet lists the steps in making a soufflèed omelet.
- Essential Skills: Making Soufflés describes how to make a soufflé.

Discuss

- How can eggs be cooked?
- Ask students how they like their eggs cooked.
- Besides eggs for breakfast, how can eggs be used in other meals?
- What is the difference between an omelet and a frittata?
- Backyard chickens as a class discussion: Review local laws and regulations to present additional information.

Vocabulary Review

- **Coddled:** Slightly cooked eggs.
- **Ramekins:** Small, ceramic, oven-proof dishes.
- **Shirred eggs:** A variety of baked eggs that have been baked in a flat-bottomed dish, such as a ramekin.
- **Poached eggs:** Eggs removed from the shell and simmered in water. Poached eggs are popular in classic dishes such as eggs Benedict and eggs Florentine, and as toppings for hash or baked potatoes. A properly poached egg should be tender and well-shaped, meaning the yolk is centered and the white is not rough or ragged.

- **Sunny-side up:** Also described simply as "up"; describes fried eggs that are fried only on the bottom.
- **Over easy** Describes eggs that are fried on the bottom, then turned over and fried very lightly on their top sides.
- **Basted eggs:** Eggs that are fried and then steamed in a covered pan.
- **Omelets:** Egg dish made by slightly beating eggs and then cooking them in a skillet with a filling, such as cheese, mushrooms, onions, or ham. Omelets are either rolled, flat, or soufflèed.
- **Frittatas:** Another name for flat omelets.
- **Quiche:** A savory egg custard baked in a crust.
- **Soufflés:** Dish, made of eggs, that can be either savory or sweet. Soufflés take time to bake and must be made to order. Soufflés are made by enriching a sauce base (generally béchamel) with egg yolk, whipped egg whites, and flavorings. The egg whites cause the soufflé to puff during cooking.
- **Pooled eggs:** Eggs that are cracked open and combined in a container.

Knowledge Check Answers (Page 69)

1. Albumen is the egg white. Yolk is the cell nucleus of an egg that contains protein, emulsifier, cholesterol, and fat. Chalazae is the tissue that suspends the yolk within the egg. Ramekins are small, individual, ceramic, ovenproof dishes. Omelets are eggs that are beaten and set in a pan, but not scrambled. A frittata is an omelet that might have the cheese or other items with the eggs, or added to the top after the eggs have set, and is not folded. Quiche is a savory egg custard pie.
2. Refer to pages 61–75 for content on egg cookery. Eggs can be cooked using many different methods, including coddled, poached, hard-boiled, fried, basted, into quiches, soufflèed, and as omelets.
3. Pooled eggs are opened, shelled eggs in a container.

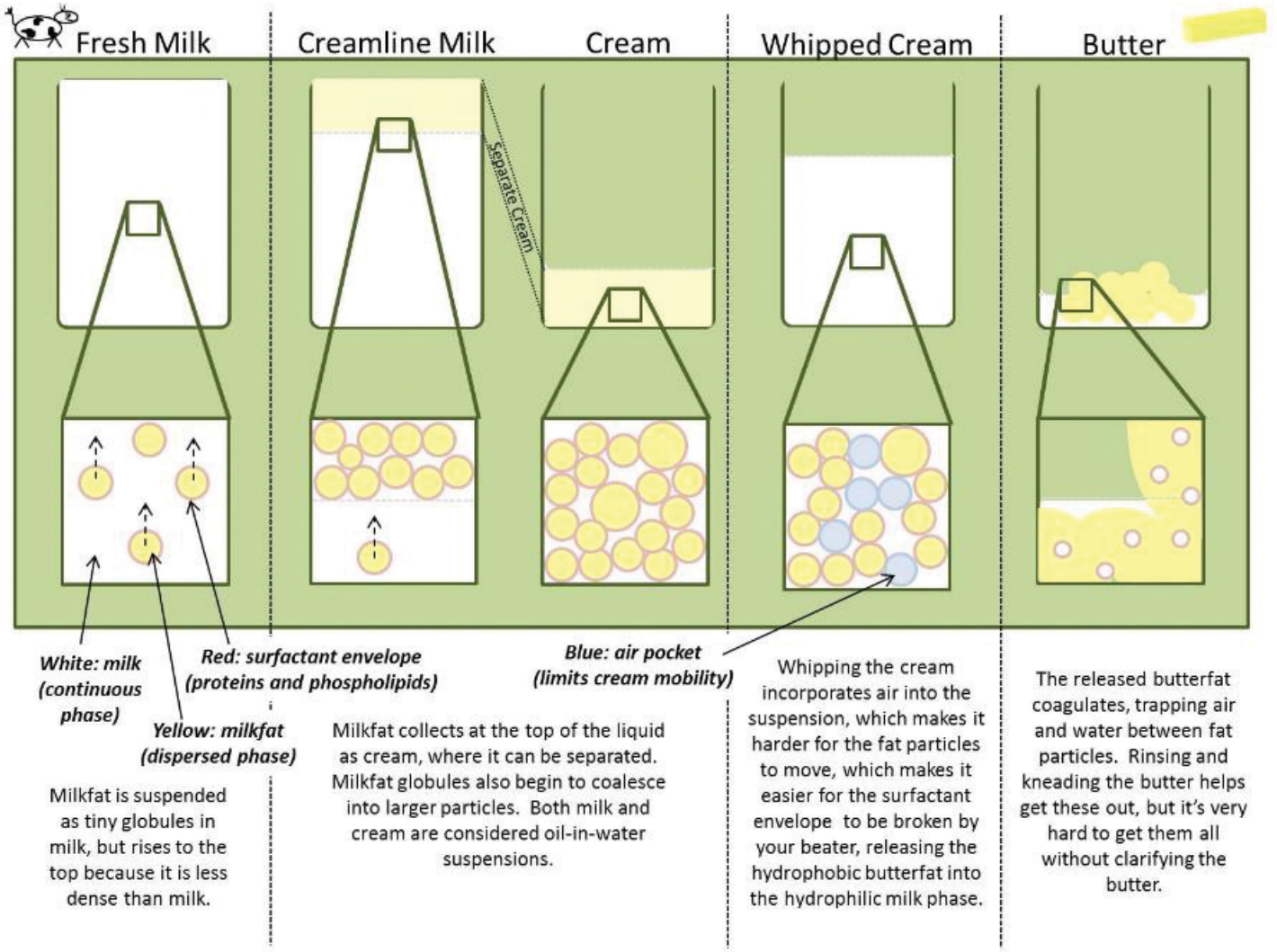
PAGE 70 **CASE STUDY FOLLOW-UP ANSWERS: "CULINARY EXPLORATION"**

1. Each student will have different ideas about this. Given the focus on price and local fruits and vegetables, Chef Mike and Judy will probably consider a variety of omelets and pancakes as well as diets that feature fresh local produce. Students should refer back to pages 62–69, which discuss the different ways to cook eggs.
2. Student answers will vary. Cheese can be incorporated into Downtown Grille's new brunch menu by adding cheese to scrambled eggs, adding different types of cheeses to omelets, ham and cheddar cheese biscuits, cheesy hash brown casserole, egg grilled cheese, breakfast pizza, breakfast enchiladas, or breakfast nachos.

PAGE 71 CHAPTER ACTIVITIES ANSWERS

- **No Whey!:** Milk is a colloidal suspension, so in theory, in time it would eventually settle out of suspension. However, it doesn't happen easily in the time frame before the milk spoils and curdles on its own. Curdling and falling out of suspension are not the same thing. Curdling is a coagulation of the milk protein. Cheese making is an ancient art form and craft. Understanding it can add to a chef's appreciation of cheese and its role in cuisine. Students can refer to pages 54–56.
    - See the teacher edition of the student Activity Guide for the cheese-making lab and notes on where to find information.
- **Green Eggs and Chemistry:** The egg cooked exactly right using the correct method is called the "control." The other eggs are the "test" eggs, and are evaluated as compared to the control. If there is access to camera equipment, photograph each of the different egg-cooking methods and the eggs that result. Students can review pages 61–69.
- **Weights and Measures:** Review concepts from level one on the differences between measurement by weight and measurement by volume. Items with more mass and density will have a higher weight on the scale, despite having the same volume measurement. Remember to reinforce the use of "fluid ounces" to refer to volume, and "ounces" to refer to measurement by weight on the scale.
    - Alternative: If possible, compare unpasteurized milk to pasteurized milk. Some unprocessed milks are frequently found in local stores, labeled "for pet use only," as the USDA prevents human consumption. What is the difference in weight and volume between the two?
- **The History of Dairy:** Encourage students to look at fairly recent centuries first, when better records were kept. It might also be of interest to examine ancient historical uses of dairy foods, and information might be available for this area of study as well, especially in frequently studied ancient civilizations.
- **From Milk to Ice Cream:** The links that follow will provide additional activities and resources; direct the research to fit the needs of your students and classroom.
    - *https://www.dairyscience.info/index.php/ice-cream/218-ice-cream-startup.html*
    - *https://www.scientificamerican.com/article/scrumptious-science-making-ice-cream-in-a-bag*

- **Breaking Down Milk:**



PAGE 72

EXAM PREP ANSWERS

1. A (p. 48)
2. A (p. 50)
3. A (p. 52)
4. C (p. 54)
5. C (p. 57)
6. A (p. 69)
7. A (p. 62)
8. B (p. 51)
9. A (p. 52)
10. C (p. 53)

Chapter 4
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers breakfast cookery, including pancakes, waffles, crêpes, and French toast. It also covers preparing breakfast meats and starches.

CHAPTER OBJECTIVES

4.1 Describe the types of breakfast service.

4.2 Prepare various pancakes, crêpes, waffles, and French toast.

4.3 Prepare various breakfast meats.

4.4 Prepare various breakfast starches.

ADVANCE PREPARATION

Review	• Chapter 4, pages 76–91 • Unit case study, "Culinary Exploration," pages 44–45
Contact	• Brunch or breakfast chef or restaurant operator
Prepare	• Ingredients for various breakfast cookery items in chapter

CHAPTER BREAKDOWN

PAGE 78 **INTRODUCTION**

Discuss

- Eggs and milk are the main ingredients in many batter-based breakfast foods. What breakfast foods are batter-based?

Vocabulary Review

- **Breakfast:** The first meal of the day, made up of breakfast foods and usually eaten in the morning; often referred to as the most important meal of the day.

PAGES 78–79 BREAKFAST SERVICE

Reinforce and Review

- The three types of breakfast service in the United States are American, English, and Continental.
- Other types of breakfast service may include a brunch or a breakfast buffet. Brunch includes breakfast and luncheon menu items and is sometimes served as a buffet.

Discuss

- What is the difference between breakfast and brunch?
- What types of food might be served at a breakfast brunch or breakfast buffet?

Vocabulary Review

- **American service:** Breakfast service in which food is often plated in the kitchen as ordered and served to the guests individually on plates; it is the most common service used in hotels and restaurants, and food may include eggs, sliced bacon, sausage, bread or toast with jam/jelly/butter, pancakes with syrup, French toast, and coffee, tea, or juice.
- **English service:** Breakfast service in which the kitchen staff is responsible for the elaborate plating of many different breakfast items, which are then presented to the host or hostess at the table, who then portions the food onto plates that are served to the guests; this type of breakfast is sometimes referred to as a "fry up" and includes sausage and bacon, eggs, fried bread, fried/grilled tomatoes, baked beans, "black pudding" (sausage with oats, pork fat, and pig's blood), kidneys, kippers, mushrooms, and fried potatoes.
- **Continental service:** This is generally a simpler self-service breakfast—an adaptation of the American and English breakfast service—that usually includes bread, rolls, muffin, toast with jam/marmalade, cereal with milk, and juice, coffee, or tea; sometimes brioche and croissants may be served. Continental service evolved because many Europeans wanted a simpler, lighter meal.
- **Brunch:** Brunch includes breakfast and luncheon menu items and is sometimes served as a buffet; it is usually served as a late breakfast and early lunch.

Customized Instruction

Learning disabled	Create a graphic organizer to show the different types of service: American, English, continental, and brunch. Find or create images to show elements in the descriptions on pages 78–79.
Academically gifted	Research the history of the items included in the English service for breakfast, often called the "fry up." It includes sausage and bacon, eggs, fried bread, fried/grilled tomatoes, baked beans, "black pudding" (sausage with oats, pork fat, and pig's blood), kidneys, kippers, mushrooms, and fried potatoes. Write a report with your findings.
ELL	Find or create images or videos to show the different types of service: American, English, continental, and brunch. Create a poster or graphic organizer with your research.

PAGES 79–81 **PANCAKES, CRÊPES, WAFFLES, AND FRENCH TOAST**

Reinforce and Review

- Pancakes, crêpes, waffles, and French toast make up the primary breakfast foods aside from eggs.
- The batters for pancakes, crêpes, waffles, and French toast are simple to make and do not take long.
- Breakfast foods made with batter are very popular restaurant items. These foods are inexpensive to make.
- All breakfast batters should be smooth and light, without lumps.
- The Essential Skills features for making pancakes, crêpes, waffles, and French toast list the steps to preparing these breakfast foods.
- Video: Making Pancakes. For a video on making pancakes, please go to: *Textbooks.Restaurant.org/Videos*.
- Video: Making Crêpes. For a video on making crêpes, please go to: *Textbooks.Restaurant.org/Videos*.
- Video: Making French Toast. For a video on making French toast, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Ask students if they have a favorite special breakfast food, and discuss which items they are. Collect the data in a class graph.
- What is the difference between a pancake and a crêpe?
- Many breakfast foods are served with syrup. What other accompaniments can be served with breakfast foods?

Vocabulary Review

- **Pancakes:** Breakfast food made with a medium-weight pour batter and cooked on an open, lightly oiled griddle.
- **Crêpes:** Very thin pancake-type breakfast item with a high egg content, resulting in a delicate, unleavened griddle cake; crêpes are traditionally cooked in a lightly oiled, very hot sauté pan.

- **Swedish pancakes:** Pancakes made with a slightly sweetened batter that is a bit heavier than a crêpe batter; these pancakes are cooked on a flat griddle or in a special fluted pan.
- **Waffles:** Breakfast food usually of medium thickness and crispy on the outside and soft on the inside, made with a medium-weight pour batter similar to pancake batter, but with more egg and oil; waffles are cooked in a specially designed waffle maker, or iron, that creates grid-like holes or specialty designs.
- **French toast:** Sliced bread (preferably a day old) dipped in an egg-and-milk mixture that is often seasoned lightly with cinnamon and nutmeg; French toast is cooked using a lightly oiled griddle or flat pan, or pan-fried in clarified butter in a hot sauté pan.

Customized Instruction

Learning disabled	Create a menu featuring only batter-based items, listed below. Design your menu to include garnishes and sauces, as well as descriptions. Include plating diagrams for how you wish the items to look in the menu or on your restaurant website. • Pancakes • Crêpes • Waffles • French toast • Swedish pancakes
Academically gifted	Using the information on the origins of French toast as a prompt (found in the Did You Know sidebar on page 79), research where other batter-based breakfast dishes came from, how they were developed, and any evolution over time. Write a response based on your research. • Pancakes • Crêpes • Waffles • Swedish pancakes
ELL	Choose one of the following items to cook at home. Create a video or series of photos in a demonstration of your preparation and technique to present to the class. • Pancakes • Crêpes • Waffles • French toast • Swedish pancakes

In-Class Activity: Math

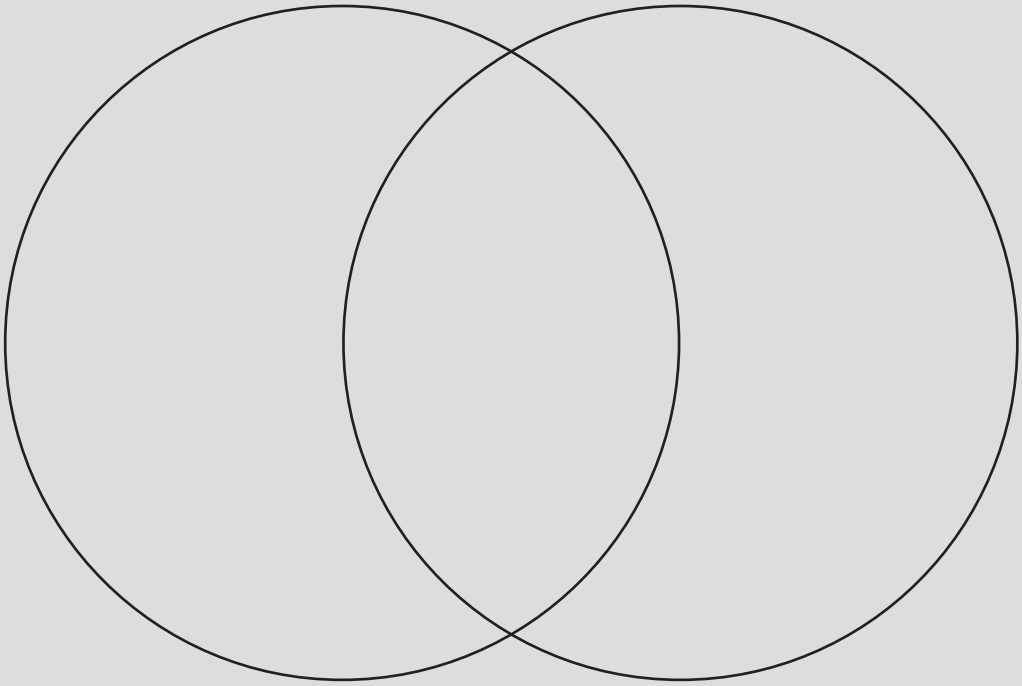
Zen Venn, or Thinking Outside the Box about Pancakes

Pancakes or some sort of egg-batter griddle cakes are found in many cuisines of the world. The students will make a modified Venn diagram, with the common elements of the cakes written inside a square box. Outside the box, the students will write the various differences and names for these cakes: blintzes, crêpes, hotcakes, flapjacks, pancakes, pannekuchen, and any other name or dish they can learn about.

Each of these names should include a brief description, such as "rolled around a fruit filling" or "topped with sour cream." These differences will be "floating" around the central box.

Name _____ Class _____ Date _____

Venn Diagram



Homework Activity: Science

Healthy Breakfast Foods

Breakfast food items tend to be high in fat and calories. If a restaurant wants to make a concerted effort to keep its menu options healthful and heart-healthy, what breakfast dishes can they put on their brunch menu that will maintain their usual standards?

PAGES 82–83 BREAKFAST MEATS

Reinforce and Review

- Bacon and sausage are both usually made from pork. They are salty and high in fat, so they are usually served in small portions.
- Cooked properly, bacon should be crisp and brown, not raw in thick sections or crunchy in thin sections.
- Fish is an essential part of a breakfast buffet in many parts of Asia, Europe, and Scandinavia. The fish is sometimes smoked, brined, or pickled, and served cold.
- Hash is a dish that originated by using leftovers before there were microwaves. It was a "second-day" dish.
- Essential Skills: Cooking Bacon describes how to cook bacon. Although most pork products today are safe, complete cooking is key to ensuring the safety of your guests.

Discuss

- Ask students if they prefer bacon crispy, crunchy, or oily. Why?
- What ideas do the students have about bacon thickness?

Vocabulary Review

- **Hash:** A mixture of chopped meat (fresh, smoked, or cured), potatoes, and onions often served for breakfast; corned beef hash is one popular version.

Customized Instruction

Learning disabled	Create posters promoting a breakfast meat of your choice, using the information on pages 82–83. Alternate: Create posters for all categories, or have an "election" in the class for students to vote for their favorite choice.
Academically gifted	Research the procedures and methods for curing and smoking fish. Write your findings in a report, and include images for each step.
ELL	Find images or videos to show the preparations and presentations for the various breakfast meats, listed below. Compile your findings in a graphic organizer. • Bacon • Sausage • Ham • Canadian bacon • Fish

PAGES 83–84 BREAKFAST STARCHES AND FRUIT

Reinforce and Review

- Guests might also have specific requests for toast, including type of bread, light toast or dark, and butter, spread, or dry. Accommodate the guest if possible.
- The same is true of fruit. Guests might request specific fruits with their breakfast.
- Breakfast is perhaps the most individualized meal a restaurant will serve.
- Offerings might or might not be creative, unusual, or exotic, but many guests will have very specific requests. These are often due to health or well-being concerns. The food a guest eats first thing in the morning could affect how he or she feels throughout the day.

Discuss

- Students might not understand why someone would go out to breakfast and order hot oatmeal. Help the students understand that many breakfast guests are eating "on the road" for business reasons. This is especially true at hotels. Guests who travel for business often have menu preferences that are different than those of people who eat out for social reasons or celebration.

Vocabulary Review

- **Grits:** Popular Southern U.S. breakfast food made from a Native American ground corn called hominy; grits are usually boiled in water, seasoned with salt and pepper, and served with butter or sugar. They may be finished with cheese, bacon, sausage, or red-eye gravy—a thin sauce that is made from pan drippings of sausage or ham and black coffee. "Charleston-style grits" are boiled in milk instead of water, which makes them creamy.
- **Hashed brown potatoes:** Also called hash browns, this breakfast item is prepared by steaming or simmering potatoes in lightly salted water; peeling, chilling, and shredding the potatoes; and then cooking the shredded potatoes on a lightly oiled griddle on medium heat until they are a light golden brown on both sides.
- **Home fries:** Raw potatoes that have been peeled and then sliced, diced, or shredded before being cooked on a well-oiled griddle, or pan-fried, until golden brown and cooked through.

Knowledge Check Answers (Page 84)

1. American Service: This is often plated in the kitchen as ordered and served to the guests individually on plates. It is the most common service used in hotels and restaurants. Food may include eggs, sliced bacon, sausage, bread or toast with jam/jelly/butter, pancakes with syrup, French toast, coffee, tea, or juice. English Service: In this service, the kitchen staff is responsible for the elaborate plating of many different breakfast items. The platters are then presented to the host or hostess at the table. The host/hostess then portions the food onto plates that are served to the guests. The food is often very high in fat and calories. Continental Service: Generally, this is a simpler self-service breakfast—an adaptation of the American and English breakfast service. It usually includes bread, rolls, muffin, toast with jam/marmalade, cereal with milk, juice, and coffee or tea. (pp. 78–79)

2. Crêpes are thinner and have a higher egg content than the basic pancake. (p. 79)
3. Bacon, sausage, and ham are meats that can be held for service. (p. 82)
4. Hot breakfast cereals come in two basic forms: (1) whole, cracked, or flaked, and (2) granular. (p. 83)
5. Hot and cold cereals need little to no preparation. (p. 83)

Customized Instruction

Learning disabled	Write and conduct a survey on breakfast cereals using questions like: • Hot or cold? • Cereal in the morning, or at any time? • Would you order cold cereal from a restaurant? Why or why not? • Bagels or donuts? Give the survey to a group of students, and calculate the results into a graph. Make the graph into a poster.
Academically gifted	Research the origins and history of grits, including various regional preparations. Write a response and present the information to the class.
ELL	Create a menu with images to show the many types of breakfast starches and fruits. List as many options as possible under each category, using the information listed on pages 83–84.

In-Class Activity: Literacy

Granny's Advice for a Happy Life

"Remember to butter the toast all the way to the edges." Some people find great meaning in this expression.

What could it possibly mean? Is it a metaphor for living? Is it culinary advice? Divide the students into groups to research and discuss the questions. Then, lead a classroom discussion together on how this might apply to a philosophy of cooking for and serving guests. Can students think of any other food-related expressions or anecdotes that may translate as a fable of sorts for life and career success?

Homework Activity: Writing

Instant Cereals

What are the pros and cons of using instant cereals in a restaurant or foodservice operation? Explain your answer in a one-page essay.

PAGE 85 CASE STUDY FOLLOW-UP ANSWERS: "CULINARY EXPLORATION"

1. Each student will have an opinion about this. Issues such as current competition, personnel, logistics, temperature controls, and selection could be included. Remember that breakfast is often lower cost, but a brunch can include upscale items as well.
2. Student answers will vary. Some examples of how to add fruit to a brunch menu include fruit and yogurt parfait, fruit salad, fruit Danish, fresh fruit skewers, fruit pancakes and waffles, fruit-filled crêpes, muffins with fruit, or fruit scones.

PAGE 86 CHAPTER ACTIVITIES ANSWERS

- **What's for Breakfast?:** Students will need to do online research to complete this activity. Student responses will vary but should include the breakfast dish's origin, history, and popularity.
- **What Makes a Pancake So Light and Fluffy?:** While doing this activity, students should take notes on the size, shape, and weight of the pancakes in each batch. Baking powder is used to make pancakes light and fluffy; the discussion should focus on chemical leavening agents.
- **How Much Fat Is in a Pound of Bacon?:** Sixteen ounces of uncooked bacon will weigh 16 ounces, or one pound. The idea here is to revisit the concepts of as purchased (AP) and edible portion (EP) quantities. An amount of weight will be lost during the cooking process, so it is key to actually weigh the bacon (after draining excess grease) after cooking. For a 2-ounce portion size, you would need 12.5 pounds of bacon. Depending on the purchase description, look for bacon that is sold by weight. Various types of bacon, varying in cost and size of piece, are available. Cost will be higher for larger pieces with less yield loss during cooking. It is common for chefs to serve according to an each-count, as the size of the portion may vary from piece to piece. Refer to page 82 for the Essential Skills feature on cooking bacon for additional instructions.
- **How Do You Start the Day?:** As a group, students need to agree on a breakfast menu for the three types of breakfast service as well as any setup or service instructions for the staff. Students should refer back to pages 78–79.
- **Restaurants and Consumer Health:** Each student will have a different opinion. This is a complex and real issue. Is the operation responsible for the guest's food choices? Are there good foods and bad foods? Or can any food fit into a healthy diet? Teenagers need a lot of calories if they are active and growing. Is it the place of an operation to determine that certain menu items are too high in calories for a "reference guest"? Would nutrition information be accurate and consistent? Why or why not? Some of these ideas might help students consider this problem.
- **The Cereal Killer:** To complete this activity, students will need to do research on the types of cereal served during a restaurant brunch. Students can refer to pages 83–84.

PAGE 87

EXAM PREP ANSWERS

1. A (p. 79)
2. B (p. 82)
3. D (p. 83)
4. C (p. 83)
5. C (p. 78)
6. D (p. 79)
7. C (p. 79)
8. A (p. 78)
9. A (p. 79)
10. C (p. 82)

Chapter 5
Teacher's Companion

CHAPTER OVERVIEW

Fruits are used throughout all cuisines. They are grown locally or shipped globally. They are used fresh, dried, frozen, or cooked. This chapter reviews the types and grades of fruits, as well as factors that impact purchasing decisions, proper storage, preparation, and cooking methods.

CHAPTER OBJECTIVES

5.1 Identify and describe different types of fruit.

5.2 List factors that affect produce selection decisions.

5.3 Identify procedures for storing fruit.

5.4 Prepare various types of fruit.

5.5 Cook various types of fruit using appropriate methods.

ADVANCE PREPARATION

Review	• Chapter 5, pages 92–117 • Unit case study, "Culinary Exploration," pages 44–45
Contact	• Fruit grower or purchaser • Local agriculture college educational extensions (some may be county based) • Future Farmers of America local chapter • CTE Agriculture department in your region • Local chapter of master gardener association • Local restaurant focused on seasonal cuisine

Prepare	• Plans and ingredients for the suggested activities listed in the companion, as well as the Activity Guide, such as:
	  • Apples and corers, peelers, knives, and other apple-related equipment
	  • Clear containers
	  • Kitchen acids (vinegar, lemon juice)
	  • Kitchen bases (baking soda, milk of magnesia)

CHAPTER BREAKDOWN

PAGE 94 INTRODUCTION

Discuss

- What foods come to mind when you think about healthy eating?
- Ask students if they have already developed an idea in their minds about fruits on the menu.

PAGES 94–101 FRUIT TYPES AND MARKET FORMS

Reinforce and Review

- Types of fruit include citrus, pommes, melons, berries, drupes, and tropical.
- The USDA quality grades are: U.S. Extra Fancy, U.S. Fancy, U.S. No. 1, U.S. No. 2, and U.S. No. 3.
- Purchasing decisions are based upon season, availability, quality, freshness, price, menu selection, and nutrient profile.
- Store fruit with an awareness of ethylene gas and its effect on ripeness. Also, fruit needs to be cool and protected to maintain both freshness and moisture. To ripen, store at 65–70°F (18–21°C). To store ripe fruit, refrigerate it at 41°F (5°C) or lower. Do not chill bananas.
- Fruits need to be evaluated for ripeness, and then washed carefully. Fruits are then dealt with according to variety. They may be peeled, cored, or sectioned, to remove inedible portions. Peeled fruits that will enzymatically brown should be treated with a mild acid like lemon juice to prevent browning during service.
- Fruits may be poached, boiled, baked, roasted, fried, sautéed, grilled, or broiled.

Discuss

- Have you ever bitten into a bad piece of fruit?
- How could you tell it was bad?
- Should freshness be evaluated?
- Would you serve fruit that wasn't fresh in a restaurant?
- What would happen to your job, or your restaurant, if you served bad fruit?

Vocabulary Review

- **Fructose:** Natural form of sugar responsible for the sweetness of fruit.
- **Summer fruits:** Fruits that ripen in the summer and include berries, cherries, grapes, melons, peaches, nectarines, plums, and pears.
- **Drupes:** Fruits that have a central pit enclosing a single seed.

- **Winter fruits:** Fruits that ripen in the winter and include apples and citrus fruits, such as oranges, grapefruits, lemons, limes, and tangerines.
- **Tropical fruits:** Fruits that grow in tropical climatic conditions and cannot tolerate frost, including dates, kiwis, mangoes, bananas, papayas, pomegranates, guava, star fruit, and passion fruit.

Customized Instruction

Learning disabled	Create a visual map of the world to show where the four main categories of fruits are grown, using images of examples of each type. Use multiple examples from each of the following categories: • Summer fruits • Drupes • Winter fruits • Tropical fruits
Academically gifted	Perform research on market pricing of the four main categories of fruits listed below. What element can affect the growing seasons, resulting in higher or lower pricing? Create a presentation to show your research, and share with the class. • Summer fruits • Drupes • Winter fruits • Tropical fruits
ELL	Create a poster or graphic organizer to categorize the four main types of fruits by their examples. Organize the categories to reflect the traditional four seasons—winter, spring, summer, and fall—according to your local region. For example, note that during the winter season in Boston, Massachusetts, strawberries do not grow locally, but can be sourced from other warm-weather climates. Use multiple examples from each of the following categories: • Summer fruits • Drupes • Winter fruits • Tropical fruits

In-Class Activity: Literacy

A Misnomer

Ask the students if they are familiar with the term "misnomer." Ask them to look it up if they do not know it. It means "misnamed."

Apples do not produce in the cold winter months. They ripen in the fall. However, they store well through the winter. Citrus fruits ripen during fall and early winter months, but not in cold places. A hard freeze can kill a citrus crop.

Is it a misnomer to call apples and citrus fruits winter fruits?

Have the students rename the category of fruits, and share what they come up with.

In-Class Activity: Physical

Reader's Theater

The students will participate in a reader's theater. Three students or three groups of students will appear.

The first student or group will say, very dramatically, the name of the fruit. The second student or group will describe, very dramatically, the qualities of freshness for that fruit. The third student or group will describe, very dramatically, the signs of poor quality for that fruit when it goes bad. Costumes should be encouraged. Have fun with it!

Alternative: Allow students to film music videos about specific fruits, using the same guidelines.

PAGES 102–103 **PURCHASING FRUITS**

Reinforce and Review

- The way the fruit is to be used dictates the grade that can be used.
- Apples for applesauce do not have to look as beautiful as apples for a fruit basket.
- The lower grades may still be fresh, ripe, tasty, and perfectly safe to use.
- The upper grades still need timely and proper handling and care.
- The lowest grade may have poor texture and flavor but still be safe to eat.

Discuss

- How could a freeze in Brazil impact the price of a meal served in Denver?
- Help the students to realize that fruit is part of the global economy.
- Help them to also realize that weather impacts the crops.
- Can weather be controlled, at least in the short term?

Vocabulary Review

- **Quality grades:** A U.S. Department of Agriculture (USDA) rating system based on quality standards—the better the quality of the fruit, the higher the quality grade assigned to it. The quality is based on a combination of size, color, shape, texture, and defects.

Knowledge Check Answers (Page 103)

1. a. winter
   b. summer
   c. tropical
   d. tropical
   e. summer
   f. winter
   g. tropical
   h. tropical
   i. summer
   j. winter
   (pp. 95–99)
2. Quality grades for fresh fruit are U.S. Extra Fancy, U.S. Fancy, U.S. No. 1, U.S. No. 2, and U.S. No. 3. Quality grades for canned fruit are U.S. Grade A Fancy for the highest quality. (p. 102)

Customized Instruction

Learning disabled	Create a graphic organizer to show the quality-grade specifications for several fruits. Use the categories listed below to find images of examples of the quality grades for fresh and canned fruit. Quality grades for fresh fruit are U.S. Extra Fancy, U.S. Fancy, U.S. No. 1, U.S. No. 2, and U.S. No. 3. Quality grades for canned fruit are U.S. Grade A Fancy for the highest quality. Use multiple examples from each of the following categories: • Summer fruits • Drupes • Winter fruits • Tropical fruits
Academically gifted	Who grades fruit? Research the role of a USDA fruit inspector for a look at how and why fruit is graded and what the particular standards are for each grade and the different types of fruit. Write a brief report with the details.

(continued)

ELL	Make a list of 10 recipes that include fruit; some fruits may be a small part of the dish, while other recipes must feature the fruit as the main attraction, like a fruit salad. Create images to show final platings of your dishes. Then, consider what grade of fruit would be needed to make the dish, and whether the fruit should be fresh or canned. Applesauce, for example, does not require the most visually appealing apple because the apple is not featured in its natural state with the peel as part of the presentation.

PAGE 103 STORING FRUITS

Reinforce and Review

- Bananas should not be refrigerated.
- Avocados and other ethylene gas emitters can ripen each other after purchase.
- Store fruit away from ethylene emitters.
- Storage should have good airflow.
- Plastic storage bags prevent airflow.
- Fruit may be safely stored out of the refrigerator under certain circumstances.
- Do not allow any stored fruit to become warm or hot, unless you are cooking it.

Discuss

- What effect does ethylene gas have on fruit?
- How should fruit be stored at room temperature?

Vocabulary Review

- **Ethylene gas:** A gas emitted by certain fruits that causes them to ripen.

Customized Instruction

Learning disabled	Perform online research to find how to properly store certain fruits. What did you find? Make a chart to show which items should be stored under refrigeration, which at room temperature, and which items can and cannot be stored together. Teacher note: *This activity will be listed in chapter 6 for vegetables, if you would like to wait to combine it into one larger project.* Useful links: • *http://www.eatright.org/resource/homefoodsafety/multimedia/infographics/how-to-keep-produce-fresh-longer-infographic* • *http://ucce.ucdavis.edu/files/datastore/234-1920.pdf*

(continued)

Academically gifted	Research how the importation of exotic fruits has changed the landscape of modern cuisine. Take note of certain traditional recipes and preparations, looking at a historic master like Escoffier. How does that compare to more modern recipes and preparations? Write a report with your findings.
ELL	Create a diagram or poster to show the proper steps to storing fruits, from the material found on page 103.

PAGES 103–106 PREPARING FRUITS

Reinforce and Review

- Fresh produce may be sprayed with insecticide. It is wise to remove this before serving.
- Anything on the skin can find its way to the flesh of the fruit on a knife blade or even a clean, gloved hand.
- Even organic fruit should be washed. Chemical insecticides may not be used, but manure might be.
- Some manure solutions are sprayed onto crops with pumps.
- Always wash fresh fruits and vegetables.
- There is a proper way to cut and prepare each type of fruit. Sometimes, there may be more than one way.
- Essential Skills: Easy Ways to Cut a Mango lists the steps to cutting a mango.
- Video: Easy Ways to Cut a Mango. For a video on easy ways to cut a mango, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Why is it important to wash fresh fruit before eating it?
- What if the fruit has a peel that will be removed? Does it still need to be washed?
- Help students to realize that prunes are a variety of plums.
- Make sure they also understand that raisins are dried grapes.
- Assure them that dry fruits are not a source of iron unless the fruit is fresh shortly before drying.

Vocabulary Review

- **Enzymatic browning:** A chemical process that occurs when the oxygen in the air comes in contact with the flesh of cut fruit, which causes the fruit to turn brown.
- **Polyphenol oxidase:** Also referred to as PPO; an enzyme found in certain fruits that causes those fruits to turn brown more quickly.
- **Acids:** Substances with a low pH, such as lemon juice, which help fruit to retain its structure.
- **Alkalis:** Substances with a high pH, such as baking soda, which cause the cells in fruit to break down more quickly, making the fruit soft.

Customized Instruction

Learning disabled	Research fruit carving, and create a graphic organizer for step-by-step instructions on how to perform five different carvings using a range of fruits. Teacher note: For ideas on student projects with digital portfolios, review the following link: *http://jo-online.vsb.bc.ca/blogs/student/su/wp-content/uploads/sites/124/2015/06/IDS2015-Monet.pdf.*
Academically gifted	How can seasonal fruits be preserved? Research the process of canning and drying fruits, and create a report with images and instructions on how to preserve fruits. Present your findings to the class.
ELL	Create a graphic organizer to showcase images of different fruits, and the step-by-step instructions on how to process the fruit from the as-purchased quantity into the edible quantity. Alternative: Create videos to show how to prepare different fruits.

In-Class Activity: Physical

Apple Olympics

Apples are not expensive and are available year-round throughout the United States. However, another fruit may be substituted to better suit the needs of the classroom.

Review knife safety skills and practices with the students.

Set up several stations for preparing apples. Each station should offer a different method for washing, peeling, coring, slicing, and/or dicing an apple.

Ideas include:

- Peeling first, and then coring and slicing
- Coring before peeling
- Cutting up the apple and then peeling and coring each piece
- Using special equipment for peeling, coring, and slicing
- Using a special coring tool and a knife for peeling and slicing
- Any other variant the teacher wants to include

Have students work in pairs and time each other at each station. Record the times. However, do not encourage speed as a mode of winning. Knife safety is critical, not being the fastest. Take away points overall for things like being unsafe, unsanitary, or unprepared.

Which method was the most efficient for the majority of the students?

Were there some students who preferred a different method than the most popular or efficient one?

Award everyone with slices of apple, with Golden Delicious slices for the winners.

In-Class Activity: Science

Apples and Enzymatic Browning

Equipment:

One apple, cut into five wedges	Milk of magnesia
Ten clear containers	Water
White vinegar	Measuring cups
Lemon juice	Litmus paper (pH indicator test strips)
Baking soda	Paper towels

Instructions:

1. Mix ¼ cup baking soda with ½ cup water in a clear container and stir to dissolve. Label it "Baking Soda."
2. Mix ½ cup milk of magnesia with ½ cup water in a clear container and stir to dissolve. Label it "Milk of Magnesia."
3. Put 1 cup water in a clear container and label it "Water."
4. Put 1 cup vinegar in a clear container and label it "Vinegar."
5. Put 1 cup lemon juice in a clear container and label it "Lemon Juice."
6. Test the pH of each cup with litmus paper or other pH indicator test strips and add the pH level to the label.
7. Dip a separate apple wedge into each cup, coating the apple completely. Place the apple on a piece of clean paper towel in front of the cup.
8. Observe the apples after 30 minutes and record their observations. Leave the apples out overnight. The next day, look at the apples and record observations again. Be sure to note the time.
9. Present data in a chart. What do these data mean? Help the students to draw data-based conclusions.
   - Polyphenol oxidase is an enzyme. What is an enzyme?
   - Enzymes can accelerate a chemical reaction, but they do not enter into or cause the actual reaction.
   - The apples turn brown in the presence of oxygen. Do the treatments remove oxygen? Or do they slow down the reaction by deactivating the enzyme?
   - Oxygen remains, and the enzyme is deactivated with treatment, which slows the process.
   - Do acids and bases have different effects upon the apple slices?
   - Acids work better and are more palatable.
10. Formulate an opinion about apple handling based upon these results.

Findings: Students should find that the lemon juice and vinegar are acids, or have a pH below 7. They should find that the baking soda and milk of magnesia are bases and have a pH above 7. Water should have a pH at or near 7.0, which is neutral. Note that all of the liquids are solutions, except water, which is a compound.

PAGES 106–110 COOKING FRUITS

Reinforce and Review

- Cooking fruit breaks down and softens the cellulose in the cell walls of the fruit.
- Too much cooking makes fruit very soft and saucy, which works well for jam.
- For a fruit to hold its shape, it must not be overcooked.
- Fruit sauces may be thickened with a starch. Some chefs use cornstarch, while others prefer arrowroot, which is more expensive. Flour is not used because it is opaque.
- Essential Skills: Poaching Fruit lists the steps to poaching fruit.
- Essential Skills: Making a Fruit Sauce lists the steps to making a fruit sauce. A fruit sauce is cooked while a coulis may be uncooked.
- Essential Skills: Baking Apples lists the steps to baking apples.
- Video: Making a Fruit Sauce. For a video highlighting the step-by-step instructions for making a cherry compote fruit sauce, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Why are Rome Beauty apples considered ideal for baked apples?
- What characteristics would you want in an apple for baking?
- Are there other apples that would work well?
- Are Rome Beauty apples also recommended for apple pie?

Vocabulary Review

- **Poached fruits:** Fruits combined with a liquid (usually a mixture of sugar, spices, and wine) and heated until tender.
- **Compotes:** A dessert of dried or fresh fruit simmered in a syrup of sugar and flavorings and served warm or chilled.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the steps for the Essential Skills features for poaching fruit, making a fruit sauce, and baking apples.
Academically gifted	What does "genetically modified organisms (GMOs)" mean for fruits? Research the "for" and "against" sides for GMOs, and the connection to fruits. Present both sides in a report to the class. Alternate: Divide the class into two groups, and allow the "for" and "against" teams to research and debate the topic.
ELL	Create videos to show how to prepare and perform the steps for the Essential Skills features for poaching fruit, making a fruit sauce, and baking apples.

Knowledge Check Answers (Page 110)

1. Ripe fruits, except for bananas, can be stored at 41°F (5°C) or lower. Fruits that need to be ripened should be stored at room temperature. (p. 103)
2. The chemical process enzymatic browning occurs when the oxygen in the air comes in contact with the flesh of cut fruit. This is what causes the fruit to turn brown. (p. 106)
3. a. boiled, sautéed
   b. grilled, baked, broiled
   c. sautéed, boiled, baked
   d. baked, boiled, fried, sautéed
   e. poached, sautéed
   f. boiled, broiled
   g. baked, roasted, fried, sautéed
   (pp. 106–110)

Homework Activity: Writing

Watermelon

How many creative things can you think to do with a whole watermelon? List 10 menu or buffet items that use watermelon as part of the ingredients and/or presentation. Describe each on paper using words and/or sketches.

PAGE 111 **CASE STUDY FOLLOW-UP ANSWERS: "CULINARY EXPLORATION"**

1. Chef Mike might add stone fruits like plums, peaches, apricots, and cherries, or some melons and berries. Exotic fruits might be used at various times of year. Some are available year-round, for a price, so they could be permanent menu items. Local fruits , in season, will be flavorful and tend to be lower in price.
2. Student answers will vary. Chef Mike could add more fruit salads, desserts, and cold soups. Examples might include a cold, creamy, sweet fruit soup or a berry coulis.

PAGE 112 CHAPTER ACTIVITIES ANSWERS

- **Kiwi:** Kiwi fruit is really a large berry from New Zealand. The Kiwi is a wingless, flightless bird indigenous to New Zealand. Kiwi has also become a nickname for all things New Zealand. The name was given to the fruit to help market it internationally as a New Zealand product. New Zealand is an island nation located in the Southern Hemisphere, south of the tropical zone, in the temperate zone. It is cooler than a tropical climate.
- **Go Bananas:** In the twentieth century, bananas became available worldwide outside the tropics. They were mass produced on plantations in South America and shipped everywhere.

  In the twenty-first century, the Philippines, India, Southeast Asia, and other tropical regions will be more involved in banana production and trade.

  The current situation for bananas is precarious, and they are vulnerable to a pandemic that could destroy the crop. There is not enough genetic diversity in the bananas that are cultivated for trade. Genetic engineering may be able to correct or improve this situation, but without intervention, the varieties of bananas worldwide consumers enjoy may become virtually extinct.

  Gros Michel bananas were the commonly exported variety early in the twentieth century. There was not enough genetic diversity in the crops and they all fell prey to Panama Disease and almost completely died out. The Cavendish variety was substituted for export, but it faces the same potential problem unless new varieties are developed.
- **How Many Lemons Do You Have?** Each lemon would weigh 5 ounces (30 lb × 16 oz ÷ 96 lemons).
- **Sourcing Local Fruits:** After the class discussion on local fruit sourcing, divide the class into groups and assign each group three local fruits. Each group must come up with three menu items using the fruits they were assigned. Students should be prepared to discuss their menu items with the class.
- **Making It Better:** The chef can add salads, cold soups, and main dish items that feature seasonal fruits. Recipes could range from pasta sauce to berry coulis. Some examples include bacon-wrapped peaches, mango salsa, creamy cranberry salad, water-cucumber salad, watermelon gazpacho, apricot lentil soup, glazed strip steak with pineapple salsa, or baked chicken with apricots. The students will have their own idea.
- **Using Fruit as Garnish:** Each student's work will be unique. Some examples might include citrus peels, citrus knots, citrus loops, strawberry or kiwi slices, or citrus slices.

PAGE 113 EXAM PREP ANSWERS

1. C (p. 94)
2. B (p. 97)
3. D (p. 106)
4. D (p. 102)
5. C (p. 97)
6. A (p. 106)
7. B (p. 103)
8. B (p. 95)
9. A (p. 97)
10. B (p. 107)

Chapter 6
Teacher's Companion

CHAPTER OVERVIEW

As with fruit, vegetables are used throughout all cuisines. Using vegetables in cuisines depends upon proper selection and handling practices. This chapter reviews the types and grades of vegetables, as well as factors that impact purchasing decisions, proper storage, preparation, and cooking methods.

CHAPTER OBJECTIVES

6.1 Identify and describe different types of vegetables.

6.2 Identify procedures for storing vegetables.

6.3 Demonstrate the preparation of various types of vegetables.

6.4 Cook various types of vegetables using appropriate methods.

6.5 Identify ways to hot hold vegetables for safety and quality.

ADVANCE PREPARATION

Review	• Chapter 6, pages 118–149 • Unit case study, "Culinary Exploration," pages 44–45
Contact	• Local farmer or vegetable purchaser • Greenhouse manager • Local agriculture college educational extensions (some may be county based) • Future Farmers of America local chapter • CTE Agriculture department in your region • Local chapter of master gardener association • Local restaurant focused on seasonal cuisine
Prepare	• Vegetables • Additional articles or resources relevant to the activities listed below, as suit the needs of your lesson plan and student needs

CHAPTER BREAKDOWN

PAGE 120 INTRODUCTION

Discuss

- Ask students if they like to eat vegetables. Have them say why or why not.
- Why does purchasing and storing vegetables affect the quality of vegetables?

PAGES 120–128 TYPES AND MARKET FORMS

Reinforce and Review

- Types of vegetables include fruit vegetables, flower vegetables, green leafy vegetables, seed vegetables, root and tuber vegetables, and stem vegetables.

Discuss

- How do avocados vary from most vegetables?
- Would you call an avocado a fruit or a vegetable?
- How do onions function in cuisine?
- What qualities do onions add to other dishes?
- What is the difference between a yam and a sweet potato?

Vocabulary Review

- **Vegetable:** An edible, herb-like plant.
- **Flower vegetables:** A vegetable in which the edible flower, or head, is the focus.
- **Crudités:** A traditional French appetizer with raw whole or sliced vegetables, often including a dipping sauce or vinaigrette.
- **Fruit vegetables:** Vegetables that come from flowering plants and have seeds.
- **Green leafy vegetables:** Plant leaves, such as lettuce, eaten as vegetables.
- **Brassica:** Edible herbs, such as broccoli or cabbage, from the mustard family.
- **Field mixes:** Mixes of assorted salad greens that may be more tender and can be planted in the spring for harvest a few weeks later.
- **Mesclun mix:** A seed blend that includes a variety of leafy lettuce and other greens.
- **Seed vegetables:** Vegetables in which the edible portions are actually seeds, such as corn or peas.
- **Root vegetables:** Vegetables in which the main edible portion grows at least partly underground as a root, such as carrots and beets.

- **Tuber vegetables:** Enlarged, bulbous, edible roots capable of generating a new plant.
- **Stem vegetables:** Vegetables in which the stems are eaten, such as asparagus and celery.

Customized Instruction

Learning disabled	Make a group of lists to organize each category of vegetable: flower, fruit, green leafy, seed, root, tuber, stem, and fungi. Using the images from the text, or images from your own research online, list examples of each type under the category. List as many types as you can, and find or create images to match. Alternate: Research options for growing some items in the classroom; *www.mushroomadventures.com* is one of many examples to incorporate the content with physical applications, an excellent way to customize instruction for all learners, but especially learners with a preference for hands-on activities.
Academically gifted	Research the growing conditions for each category of vegetable, including things like the growing season, when the item is seasonal, the length of time from seed to harvest, and other like pieces of information. Plan to grow at least two from each category in a community garden at your school. Keep in mind things like your growing zone conditions and anything else specific to your local region. Write a plan with your research for how you will grow the different vegetables, complete with a timeline.
ELL	Create a graphic organizer to define the key vegetable terms listed below. Find or create images or screenshots to help show what each term is. Make notes for each item on whether or not you have tasted that item, and what your thoughts are. • Vegetable • Flower vegetable • Crudités • Fruit vegetable • Green leafy vegetables • Brassica • Field mixes • Mesclun mix • Seed vegetables • Root vegetables • Tuber vegetables • Stem vegetables • Fungi Alternate: If possible, the instructor will have examples of each type for the student to feel, see, prepare, and taste.

In-Class Activity: Physical

Plant Cultivation

If there is a planting bed, a pot area with good light, or a greenhouse at your school, ask to use it. During good weather, plant edible nasturtium seeds. Water them, and make sure they have adequate light. Nasturtiums grow quickly and are prolific.

Harvest the flowers. Carefully remove any insects and dirt, and wash the flowers. Taste them in a tossed green salad.

The use of nasturtium flowers in salad was popularized in the 1970s by Alice Waters of Chez Panisse in Berkeley, California.

In-Class Activity: Physical

Taste-Testing Peppers

Resource:

> How Hot Is That Pepper? How Scientists Measure Spiciness: How does the Scoville Scale rate the relative spiciness of a chili pepper?
>
> By Twilight Greenaway, Smithsonian.com, January 10, 2013
>
> Read more at: *http://www.smithsonianmag.com/arts-culture/how-hot-is-that-pepper-how-scientists-measure-spiciness-884380/#wxqL2Qz4qTelshYe.99*

Prepare for this activity by researching the Scofield Scale, the scale that measures in Scofield Heat Units (SHU) the level of heat for each pepper variety. Allow students to perform at-home Internet research on this, with websites and videos. WARNING: Take extreme caution with preparing or tasting hot peppers, as this is a REAL danger.

Peppers of various varieties range in hotness from the mild bell pepper to the very hot habañero.

Assemble a nonblind taste test with labeled samples of various peppers. Also have a whole pepper of each variety for the students to see and handle.

Some peppers to consider including might be:

- Green bell
- Red, orange, yellow bell
- Anaheim
- Serrano
- Habañero
- Jalapeño
- Green chili
- Other locally available varieties

Students should keep records of their findings and should rate each pepper for hotness, flavor, and texture. Have the students suggest dishes that would call for each variety of pepper. Have the students create a table, chart, cards, or other tool for remembering the qualities of peppers. This will be for their future use. Make sure they spell the names of the peppers correctly. They should also draw or photograph each pepper as part of their tool. For a more in-depth activity, fire roast a pepper to show the students a new possibility. How does fire-roasting change the flavor of a pepper?

Homework-Activity: Writing

Mesclun

Mesclun is a catch-all word for a mix of green, leafy, lettuce-type vegetables. Have the students investigate the various types of leaves that feature in mesclun mixes. Do all the greens in the mix mature at the same time? What does this mean for harvest and use? Write a one-page essay on the findings.

In-Class Activity: Math

Onion Layers and Fibonacci Number Systems

In nature, many things are represented by a recurring number system that follows a pattern.

A mathematician from the Middle Ages called Leonardo de Pisa (nicknamed Fibonacci) lived in the twelfth and thirteenth centuries.

Fibonacci noticed that plants and other things in nature have features with predictable mathematical patterns. Things like leaves on a branch, petals on a flower, chambers in a nautilus shell, and layers of an onion all have a pattern to their design.

- The Fibonacci system starts with 1.
- The given number is added to the number that precedes it to derive the next number. For example, if 1 is the start, then the number preceding 1 is 0.
- The equation is 1 + 0 = 1, so the sequence is now 1, 1.
- Add the new 1 to the number that precedes it: 1 + 1 = 2. The sequence is now 1, 1, 2.
- Add the new 2 to the number that precedes it: 2 + 1 = 3. The sequence is now 1, 1, 2, 3.
- And so forth.

Continue building the sequence with a few more equations.

Take apart an onion. See if you can observe the natural occurrence of a Fibonacci number system in the anatomy of the onion.

Do you observe Fibonacci systems in other fruits and vegetables?

Using a search engine, look for additional resources to elaborate on this topic, such as the example below:

http://www.ecocentre.com/sites/ecocentre.com/files/education/Activity%2012%20Finding%20Fibonacci%20patterns%20in%20nature.pdf

PAGE 129 **PURCHASING VEGETABLES**

Reinforce and Review

- Hydroponic farming is farming without dirt in a nutrient-rich, watery medium.
- With hydroponic farming, vegetables grow indoors year-round.
- USDA grades (from highest to lowest) for fresh vegetables include U.S. Extra Fancy, U.S. Fancy, U.S. No. 1, U.S. No. 2, and U.S. No. 3. Canned products rated U.S. Grade A Fancy have the highest quality among canned goods.

Discuss

- Is hydroponic farming a positive advancement for restaurant and foodservice operations? Why or why not?

Vocabulary Review

- **Hydroponic farming:** A system of farming in which vegetables are grown indoors year-round, under regulated temperatures and light, in nutrient-enriched water.

Customized Instruction

Learning disabled	Create a chart with the different vegetable categories. When are certain items in season? Make a chart or poster that reflects the four seasons—winter, spring, summer, and fall—and place each category in the proper season. Make or find images to show examples of each category, and place them under the category in the correct season. How do you think this affects food purchasing?
Academically gifted	Research the trend in food "purchasing" called foraging. What does this mean? How do people accomplish this? What are the pros and cons, and how is this connected to proper purchasing procedure in the restaurant industry. Write a response with your findings. Teacher article example link, to integrate literacy: *http://www.newyorker.com/magazine/2011/11/21/the-food-at-our-feet*
ELL	Make a graphic organizer with images, screenshots, or videos that show the four seasons of growing vegetables. Organize the information to show what vegetables grow in what season. Can you think of a local restaurant that specializes in seasonal ingredients? Write a short response with your thoughts.

PAGE 130 STORING VEGETABLES

Reinforce and Review

- Ripe vegetables should be stored at 41°F (5°C) or lower.
- Most vegetables need to be kept dry because excess moisture causes produce to spoil quickly.
- Vegetables that need to be ripened should be stored at room temperature.
- Once produce is ripe, refrigerate it immediately or it will become overripe.

Discuss

- What is the proper way to store vegetables?
- How should roots and tubers be stored?

Knowledge Check Answers (Page 130)

1. a. stem
   b. fruit
   c. flower
   d. root
   e. root
   f. fruit
   g. stem
   h. green leafy
   i. root
   j. seed
   k. green leafy
   l. tuber
   (pp. 120–128)
2. Ripe vegetables should be stored at 41°F (5°C) or lower. Most vegetables need to be kept dry because excess moisture causes produce to spoil quickly. Vegetables that need to be ripened should be stored at room temperature. (p. 130)

Customized Instruction

Learning disabled	Perform online research to find how to properly store certain vegetables. What did you find? Make a chart to show which items should be stored under refrigeration, which at room temperature, and which items can and cannot be stored together. Teacher note: *http://www.eatright.org/resource/homefoodsafety/multimedia/infographics/how-to-keep-produce-fresh-longer-infographic* *http://ucce.ucdavis.edu/files/datastore/234-1920.pdf*
Academically gifted	Research the science of storing food in space. With the guidelines provided from your instructor, write an essay with your findings. Teacher resource: *https://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Ripening_of_Fruits_and_Vegetables.html*
ELL	Create a diagram or poster to show the proper steps to storing vegetables, from the material found on page 130.

PAGES 131–133 **PREPARING VEGETABLES**

Reinforce and Review

- Preparation of vegetables includes cleaning, peeling, slicing, dicing, chopping, and mincing.
- Celery and lettuce usually carry some field dirt that needs to be rinsed off.
- Essential Skills: Slicing Celery lists the steps to slicing celery.
- Essential Skills: Mincing Garlic lists the steps for mincing garlic.
- Essential Skills: Dicing Vegetables lists the steps for dicing vegetables.
- Video: Mincing Garlic. For a video on mincing garlic, please go to: *Textbooks.Restaurant.org/Videos*. This video shows the step-by-step procedure for how to mince garlic.

Discuss

- What are the differences between chopping, dicing, and mincing?
- Why is it important to clean vegetables before preparing them?

Vocabulary Review

- **Dicing:** Cutting a product into cubes with a chef's knife; normally, dicing refers to about a half-inch cube—the same size as dice.
- **Mincing:** A fine chop cut made by using a chef's knife or mezzaluna, a knife consisting of a single or double blade with a handle on each end; this cut is commonly used on smaller foods, such as garlic, fresh herbs, and ginger.

Customized Instruction

Learning disabled	Create a graphic organizer to show how to clean, mince, chop, and dice vegetables, including a timeline from start to finish. Use images, screenshots, or videos to do this.
Academically gifted	Research the rise of convenience preparation tools for various vegetables. How do these tools work? Are these tools acceptable in the professional kitchen? In a response, compare and contrast "at-home" cooking tools for vegetable preparation versus professional techniques and tools.
ELL	Create a graphic organizer to connect the proper tools and setup to each of the following techniques: cleaning, mincing, chopping, and dicing vegetables.

PAGES 133–141 **COOKING VEGETABLES**

Reinforce and Review

- There are many ways to cook vegetables, including boiling, steaming, roasting, baking, sautéing, stir-frying, pan-frying, deep-frying, stewing and braising, grilling, and puréeing.
- Essential Skills: Steaming Vegetables describes how to steam vegetables.
- Essential Skills: Microwaving Vegetables provides instructions on microwaving vegetables.
- Essential Skills: Roasting Vegetables lists the steps to roasting vegetables.
- Essential Skills: Sautéing and Stir-Frying Vegetables provides instructions for stir-frying and sautéing vegetables.
- Essential Skills: Glazing Vegetables describes how to glaze vegetables.
- Essential Skills: Pan-Frying Vegetables lists the steps for pan-frying vegetables.
- Essential Skills: Deep-Frying Vegetables lists the steps for deep-frying vegetables.
- Essential Skills: Grilling Vegetables lists how to grill vegetables.
- Essential Skills: Stewing and Braising Vegetables lists the steps to stewing and braising vegetables.
- Essential Skills: Puréeing Vegetables describes how to purée vegetables.
- Video: Sautéing and Stir-Frying Vegetables. For a video on sautéing and stir-frying vegetable, please go to: *Textbooks.Restaurant.org/Videos*. The video features one technique of sautéing vegetables, caramelizing onions.

Discuss

- Do you think it is worth it for a restaurant to prepare fresh fruits and vegetables? Why or why not?
- Would it be better for an establishment to simply purchase foods that are ready-to-serve? Why or why not?
- Could purchasing ready-to-serve foods perpetuate a lack of skills in the staff?
- Ask students to think of some deep-fried vegetables.
- Some vitamins are fat-soluble. What does that mean for vegetables that have been boiled in water?

Vocabulary Review

- **Parboiling:** Partially cooking a food item in boiling water.
- **Glazing:** A finishing technique that gives vegetables a glossy appearance.
- **Puréed:** Made into a thick liquid by crushing the cooked food.

Customized Instruction

Learning disabled	Look online for videos that show the many ways to cook vegetables. Take notes on what you see. Create a visual organizer with your notes from the videos and your notes from the book.
Academically gifted	Create a children's book to highlight simple vegetable preparation and cooking techniques that can be done easily with the help of an adult. Present to a local elementary class, with the assistance from your instructor.
ELL	Create videos that show how to prepare and perform various cooking techniques. Build a video diary of the techniques, in the lab or at home, to share with the class.

In-Class Activity: Literacy

Vegetable Memory Buzz

The students should memorize the various cooking methods for vegetables using any mnemonic device that suits them, including acronyms, poetry, first initials, or songs.

Have the students compete to see who can name them all. The first student will attempt to recite all the cooking methods, in order. If the student makes a mistake, the next student may try.

Continue down the line until every student has had a turn. It may take several rounds before any single student recites them all in order.

The first to get them all correct, in order, should get a prize, like an apple or a carrot. The restaurant industry is competitive, so some competitive activities for high school students are appropriate.

Alternative: Create songs and film music videos about vegetable cookery.

PAGE 142 HOLDING VEGETABLES

Reinforce and Review

- The best way to maintain overall quality is to cook vegetables rapidly then serve them as soon as possible.

Discuss

- What qualities might be lost with long holding?
- What holding methods might damage the quality of vegetables?

Knowledge Check Answers (Page 142)

1. Dicing is cutting into small cubes. Mincing is a fine chop cut made using a chef's knife. (p 131)
2. Appropriate cooking methods for each include:
   a. simmer, steam, microwave
   b. simmer, steam, microwave, boil
   c. simmer, steam, microwave, boil, stir-fry
   d. simmer, steam, microwave, boil, sauté, roast
   e. boil, bake
   f. bake, grill, roast
   g. bake, boil, microwave, fry, roast, sauté
   h. simmer, steam, boil, roast, fry
   (p. 134)
3. Vegetables can be used in many main-dish salads. They can be used as meat substitutes as well. Vegetables can be used in sauces, dressings, pasta dishes, and even in breads and pasta doughs. (p. 133)
4. One way to hold vegetables without losing quality is to stop the cooking process using cold water. Draining, holding uncovered, using a steam table, and simmering in stock can all help keep the quality high. Do not hold vegetables for a long time or they will lose color, texture, flavor, and quality. (p. 142)

PAGE 143 CASE STUDY FOLLOW-UP ANSWERS: "CULINARY EXPLORATION"

1. Student answers will vary. Some examples of vegetarian appetizers include stuffed mushrooms, hummus, spinach dip, guacamole, vegetable tempura, polenta fries, risotto balls, mozzarella and tomato skewers, and cucumber and zucchini salsa. Some examples of vegetarian entrees include vegetarian stuffed peppers, broccoli cheddar casserole, eggplant parmesan, black bean and cheese enchiladas, pasta with vodka sauce, vegetarian chili, and baked ziti.

2. Student answers will vary. Some examples of breakfast items with vegetables include broccoli quiche, spinach omelet, hash browns, banana muffins, and a breakfast burrito. Some examples of lunch items with vegetables include vegetable lasagna, veggie chili, lentil tabbouleh, veggie pizza, spaghetti squash primavera, and spinach cheese manicotti.

PAGES 144–145 CHAPTER ACTIVITIES ANSWERS

- **Under the Ground:** Both tubers and roots grow underground and are part of the root system of the plant. Roots can be above and below the ground and are part of a single root. Tubers are fat underground stems that can reproduce a single new plant.
- **Fruit or Vegetable?:** Each student's work will be unique. They may include various elements, such as something about seed pods, varied uses for sweet or savory fruits, comparisons, or similarity of flavors.
- **Small Groups, Large Groups:** For the vegetable soup:

  Solution: Conversion factor: 100 ÷ 6 = 16.67

Old Quantity	New Quantity
2 tbsp olive oil	34 tbsp / 17 oz
1 medium onion	17 onions
3 stalks celery	51 stalks
4 carrots	67 carrots
2 potatoes	34 potatoes
3 cloves garlic	51 cloves
8 oz corn (fresh/frozen)	134 oz / 8.5 lb
10 oz canned tomatoes	167 oz / 10.5 lb
48 fl oz chicken stock	801 fl oz / 6.25 gal

- **Vegetable Cookbook:** Students will need to browse through cookbooks or do online research to find recipes that use vegetables in appetizers, salads, entrées, and desserts. The recipes should be printed and presented as a cookbook. Some examples include seven-layer dip, spinach pinwheels, vegetable dips, Asian ramen salad, bean salad, vegetable pasta salad, eggplant parmesan, vegetable lasagna, black bean and corn quesadillas, blackberry crumb bars, carrot cake, and pumpkin spice muffins.
- **Growing "Green" Herbs and Vegetables:** Hydroponic farming is when vegetables or herbs are grown indoors year-round, under regulated temperatures and light in nutrient-enriched water. Students will need to do research to find the benefits of growing hydroponic vegetables and herbs. Some benefits of growing vegetables and herbs hydroponically include no pesticide damage, no soil needed, shorter growth cycle, no weeds, pests and diseases are easier to get rid of, and plants produce higher yields.

- **Vegetable Condiments:** Each student's work will be unique. The following is a sample chart:

Chutney	A thick sauce that is made from fruits, vinegar, sugar, and spices.
Compote	Fruit cooked or stewed in syrup, usually served as a dessert.
Confit	Meat that has been cooked and preserved in its own fat.
Conserve	A food made by preserving fruit with sugar.
Coulis	Thick sauce made from puréed and strained vegetables and fruit.
Jelly	A sweet, clear, semisolid, somewhat elastic spread or preserve made from fruit juice and sugar boiled to a thick consistency.
Marmalade	A jellylike preserve in which small pieces of fruit and fruit rind, as of oranges or lemons, are suspended.
Preserve	Food made with fruit preserved in sugar, such as jam or marmalade.
Relish	A sweet pickled condiment made of various vegetables, usually chopped or minced.
Salsa	A sauce, especially a hot sauce containing chilies.

Note: See the Activity Guide for additional activities on this topic.

PAGE 146 EXAM PREP ANSWERS

1. A (p. 126)
2. B (pp. 122–123)
3. C (p. 130)
4. D (p. 135)
5. B (p. 134)
6. C (p. 129)
7. C (p. 125)
8. C (p. 121)
9. B (p. 130)
10. A (p. 142)

Chapter 7
Teacher's Companion

CHAPTER OVERVIEW

This chapter presents the various types of potatoes, legumes, grains, and pastas. It also reviews the selection, storage, preparation, and appropriate cooking methods for each of these products.

CHAPTER OBJECTIVES

7.1 Identify and describe different types of potatoes.

7.2 Identify procedures for storing potatoes.

7.3 Prepare potatoes using a variety of methods.

7.4 Identify and describe different types of grains and legumes.

7.5 Explain how to store grains and legumes.

7.6 Prepare various types of grains and legumes.

7.7 Identify and describe different types of pasta.

7.8 Prepare pasta using a variety of methods.

7.9 Prepare dumplings using a variety of methods.

ADVANCE PREPARATION

Review	• Chapter 7, pages 150–189 • Unit case study, "Culinary Exploration," pages 44–45
Contact	• Local restaurant and foodservice operations, as needed • Local resources for specialty grains
Prepare	• Idaho russet and Yukon gold potatoes (one each, uncooked) • Purple Peruvian and Red Thumb potatoes (samples, cooked) • Baking potatoes • Starch and Styrofoam packing peanuts • Acetone • Foil • Oil • Varieties of pastas

CHAPTER BREAKDOWN

PAGE 152 INTRODUCTION

Discuss

- Ask students what they like to eat in the cold weather.
- Can starches be used as main dishes?

PAGES 152–154 TYPES OF POTATOES

Reinforce and Review

- Potato varieties differ in starch and moisture content.
- Types of potatoes include all-purpose potatoes, new potatoes, russet potatoes, sweet potatoes, yams, and yellow-fleshed potatoes.
- Sweet potatoes are tubers.
- Select potatoes that are firm and smooth without dark spots, green areas, mold, or large cuts.

Discuss

- How are potatoes used on restaurant menus?
- What does the word russet mean? How red are russet potatoes?
- How does potato salad differ from a baked potato?

Vocabulary Review

- **Potatoes:** Edible, starchy tubers that come in several varieties and are an important crop in many parts of the world.

Customized Instruction

Learning disabled	Create a graphic organizer with the many types of potatoes. Use Table 7.1 to turn the words into images to show the characteristics and cooking techniques for each variety.
Academically gifted	Research heirloom potato varietals, including what they are, how they are grown, and the challenges and rewards associated with growing an heirloom. Teacher note: Activity can be connected to the vegetable and fruit chapters as well. Potential research link: *http://www.seedsavers.org/category/potatoes*
ELL	Homework activity: Travel to a grocery store. Photograph as many varietals as possible, using Table 7.1 as a guideline. Write notes on touch and appearance for your graphic organizer.

In-Class Activity: History

The Irish Potato Famine

Research the Irish Potato Famine. What caused this? How can famine be prevented? Discuss as a class the information found in research.

Teacher note: Search for articles or videos that suit the needs of your classroom, like:

https://mises.org/library/what-caused-irish-potato-famine.

In-Class Activity: Literacy

Apples and Potatoes

Potatoes are eaten the world over. They are actually compared to apples at times because of their versatility and availability.

In Austria, the potato is sometimes called an *Erd Apfel,* or earth apple.

In the small town of Hatch, Utah, the term Hatch Apple refers to a small red potato that is eaten raw like an apple.

Can the students think of any dishes or recipes where potatoes could be exchanged for apples, or vice versa?

What would be the results of a potato/apple swap in a given dish?

Have the students write two paragraphs about any aspect of the potato/apple concept.

Humor is encouraged.

PAGE 154 STORING POTATOES

Reinforce and Review

- Store potatoes in a cool, dry place at a temperature ranging from 45°F to 55°F (7°C to 13°C).
- Store potatoes in ventilated containers in indirect light.
- Store potatoes for a maximum of one week.

Discuss

- Does potato storage require temperature control?
- If temperature and time are both requirements, what about airflow and light?
- Where would you store potatoes at home?

Vocabulary Review

- **Solanine:** A potentially harmful, bitter-tasting substance found in potatoes that have developed a greenish color.

Customized Instruction

Learning disabled	Have you ever noticed a green ring on your potato chip? Research the connection with solanine, and whether or not this is harmful to eat.
Academically gifted	Research the history of root cellars as the primary way to store potatoes prior to the invention of refrigeration. How did this work to store potatoes and other items? Is this effective, given what you now know about keeping food safe? Write a response with your findings, connecting historical storage methods with the proper methods in modern times.
ELL	Create a chart that shows the proper steps in storing potatoes, with step-by-step instructions.

PAGES 154–158 PREPARING POTATOES

Reinforce and Review

- Green shoots and sprouts are not desirable or safe. Do not purchase potatoes that show green on the skins or have sprouted.
- Any dish that requires more than one cooking method, such as scalloped potatoes, would be multiple-stage.
- Video: Boiling and Mashing Potatoes. For a video with step-by-step instructions on the technique of boiling and mashing potatoes, please go to: *Textbooks.Restaurant.org/Videos.*

- Essential Skills: Boiling Potatoes lists the steps to boiling potatoes.
- Essential Skills: Steaming Potatoes lists the steps to steaming potatoes.
- Essential Skills: Baking Potatoes lists the steps to baking potatoes.
- Essential Skills: Deep-Frying Potatoes shows how to deep-fry potatoes.
- Essential Skills: Mashed Potatoes lists the steps for making mashed potatoes.

Discuss

- Can students think of several different types of potatoes and potato dishes?
- Ask students to name their favorite potato dishes.
- Why is a chef's potato a better choice for sautéed potatoes than russet potatoes?

Vocabulary Review

- **Single-stage technique:** Style of cooking in which potatoes are cooked directly from the raw state to the finished state by using one cooking method; boiled and baked potatoes are examples.
- **Multiple-stage technique:** Style of cooking in which potatoes are prepared using more than one cooking method before they are a finished dish; lyonnaise potatoes are an example.
- **Lyonnaise:** Recipe in which potatoes are precooked, sliced, and then fried with onions.
- **Latkes:** Pan-fried potato pancakes that are traditional in American-Jewish cooking and are usually served with apple sauce and sour cream.

Customized Instruction

Learning disabled	Make two lists, titled "single-stage technique" and "multiple-stage technique." List as many potato preparations as you can under the proper titles.
Academically gifted	Research the potential costs and constraints for cutting potatoes into French fries by hand, versus buying a product precut or preblanched. Create a presentation showing what you believe to be the best way to make French fries by hand, and include research on the pros and cons of making versus buying, or using a partially prepared item.
ELL	Create a poster for single-stage techniques and multiple-stage techniques for potato preparation, highlighting images of finished potato dishes that represent the particular technique.

In-Class Activity: Science

Polymer Chemistry

A polymer is a long chain molecule made up of smaller molecules that are either identical or quite similar. An example of a polymer is DNA. Other examples of polymers are the various forms of plastic that we use. Food examples include starches, proteins, and fatty acids.

Packing peanuts, whether they are Styrofoam or starch, are made of a carbon-based polymer puffed up with air.

The students can observe the teacher perform the demonstration and record their observations.

Supplies:

- 4 clear glass containers
- Styrofoam packing peanuts
- Starch packing peanuts
- Acetone
- Water

Instructions:

1. Fill two clear glass containers with enough water that a packing peanut can be completely submerged.
2. Do the same with two more clear glass containers, but this time with acetone instead of water.
3. Use one container of acetone and one container of water for the Styrofoam peanut test.
4. Drop Styrofoam peanuts into the water. Have the students observe what happens to the peanuts and record their observations.
5. Then drop Styrofoam peanuts into acetone. Have the students observe what happens to the peanuts. Again, have them record their observations.
6. Use the remaining containers of water and acetone to perform the same test on the starch peanuts. Again, have students record their observations.

Discuss:

- What happens to make the peanuts dissolve? The polymer links separate, which dissolves the molecule.
- Did all the peanuts dissolve in either kind of solution?
- Which peanut dissolved in water the best?
- Which peanut dissolved in acetone the best?
- Which solution(s) dissolved Styrofoam?
- Which solution(s) dissolved starch?
- Based upon your observations, which type of packing peanut would be the most biodegradable?
- Which type of packing peanut would be best for the environment?
- The peanuts made of Styrofoam do not dissolve in water, so they are not biodegradable. They will dissolve in a solvent like acetone. The peanuts made of starch will dissolve in water, which means they are biodegradable.

In-Class Activity: Literacy

Value-Added Pasta

Students may not be familiar with the term value-added. It means "an enhancement" that does not add significantly to the price. Some types of pasta are available for purchase with fillings such as meat, cheese, or vegetables already inside. The students might not be familiar with value-added pasta.

Reproduce the following for the students: Types of Pasta

Circle the pasta types that are value-added. The value-added filled pastas are: tortellini, ravioli, agnolotti, fagottini, and tortelloni.

The students can research the various types of pasta and determine which are value-added.

The students might want to discuss whether or not spinach, tomato, or herb-flavored and colored pastas are value-added.

The students might also want to discuss manicotti, cannelloni, and other stuffed pastas that are usually stuffed in-house as a specific menu item.

In-Class Activity: Literacy

Pasta and Sauce

Ask the students to fold a piece of paper in half to make two columns.

In the column on the left, the students will write a list of the various types of pasta found in Table 7.12.

In the column on the right, the students will copy a list of various types of sauces.

Have them suggest various pasta sauces. Some suggestions might include marinara, alfredo, olive oil and cheese, meat sauce, fruta de mare, cheddar cheese sauce, salad dressing, and mayonnaise.

Have the students draw a line from the pasta to the type of sauce that would complement the pasta shape.

There is not necessarily a right or a wrong answer. Have the students discuss their reasoning.

PAGES 158–171 **LEGUMES AND GRAINS**

Reinforce and Review

- Legumes include beans, peas, nuts, and seeds.
- Grains are grasses that grow edible seeds.
- Grains usually have a lot of starch in the endosperm.

Discuss

- What are different types of legumes and grains?
- What are different types of nuts and seeds?

Vocabulary Review

- **Legumes:** Edible seeds from pod-producing plants; beans, peas, lentils, nuts, and seeds are examples.
- **Bean:** Edible seed, often kidney-shaped, from various plants of the legume family.
- **Pea:** Round, edible seed that is a plant and part of the legume family.
- **Nut:** Fruit composed of a hard shell and a seed, which is generally edible.
- **Seed:** Embryonic plant enclosed in a protective outer covering called the seed coat, usually with some stored food.
- **Grains:** Grasses that grow edible seeds.
- **Meals:** Coarsely ground or crushed seeds of plants such as young cereal grasses; cornmeal is a common example.
- **Whole grains:** Grains that have not been milled.
- **Milling process:** Process in which the germ, bran, and hull of the grain are removed or polished.
- **Hull:** The protective coating, or husk, that surrounds a grain.
- **Bran:** The tough layer surrounding the endosperm of a grain; a great source of fiber and B vitamins.
- **Endosperm:** The largest part of the grain and a major source of protein and carbohydrate.
- **Germ:** The smallest part of the whole grain; it provides a trace of fat and is rich in thiamin.
- **Stone ground:** Process in which grains are ground and broken down but retain more of their nutrients because the germ, bran, and hull are left intact.

Customized Instruction

Learning disabled	Create a graphic organizer for the four main categories of legumes: beans, peas, nuts, and seeds. Using Tables 7.2–7.5, create or find images to connect the different types of beans, peas, nuts, and seeds with the common culinary uses. For example, for garbanzo beans, you may find an image of hummus.
Academically gifted	Research where different varieties of beans, peas, nuts, and seeds are grown, whether we import or export certain items, and what type of weather conditions are needed for successful crops. For example, California almonds require large amounts of water, and the area has experienced drought conditions. Can you find other such examples? Write an essay with your findings.

(continued)

ELL	Research and develop a video presentation explaining the four different types of legumes: beans, peas, nuts, and seeds. Use Tables 7.2–7.5 as a starting point, and consider the presentation to be like a commercial for the item. Teacher note: Use commercials for the California raisin or avocados from Mexico as an example. Students may speak generally about the type, or choose a particular varietal from each category.

Knowledge Check Answers (Page 171)

1. A tuber is an underground stem growth that will reproduce another potato plant. (p. 152)
2. Potatoes should be stored in a cool, dry place at a temperature ranging from 45°F to 55°F (7°C to 13°C) in ventilated containers in indirect light. (p. 154)
3. Single-stage techniques involve only one cooking technique to take the potato from raw to the table. Examples would be French fried potatoes and baked potatoes. Multiple-stage techniques involve more than one type of cooking and handling technique. Examples would be twice-baked potatoes and lyonnaise potatoes. (pp. 154–155)
4. The three parts of a grain are the endosperm, bran, and germ. (p. 165)
5. During the milling process, the grain is polished and the hull of the grain is removed. (p. 165)

In-Class Activity: Math

Soybean Table

Soybeans are perhaps the most versatile legume. They are very nutritious and excellent to use.

Have the students design a table that displays the various uses of soybeans in foods. The students can determine their own categories and divisions, as well as how to display their data. The table should communicate the data clearly to others.

PAGE 172 **SELECTING AND STORING LEGUMES AND GRAINS**

Reinforce and Review

- Store legumes in a cool, dry, well-ventilated area, away from light and excessive heat.
- Discard any beans or peas that are moldy or wrinkled.
- Whole grains have a shorter shelf life than milled grains. Use them within three weeks of purchase.

Discuss

- Should you cut dry beans? Why or why not?
- How should you store legumes?

Customized Instruction

Learning disabled	What is the difference between dried and canned beans? Perform research, and if possible, prepare both at home to taste test. Write notes on your findings.
Academically gifted	Refer to ServSafe or Level One chapters, and connect potential foodborne illnesses to dried legumes. Research how manufacturers may prevent this, and write a response to present to the class.
ELL	Film a short video to show how to properly select and store legumes using the information on page 172 as a guideline.

PAGES 172–174 PREPARING LEGUMES

Reinforce and Review

- Soak legumes and grains before cooking.
- Essential Skills: Softening Dried Beans lists the steps in softening dried beans.

Discuss

- Why do different legumes have different soaking and cooking times?

PAGES 174–176 COOKING GRAINS

Reinforce and Review

- Essential Skills: Making Pilaf lists the steps to making pilaf.
- Techniques for cooking grains include pilaf and risotto.

Discuss

- Why is cooking time important for grains?
- Ask students if they have ever tried risotto. If students have tried risotto, ask them to describe it.
- When might risotto be served?

Vocabulary Review

- **Pilaf:** A technique for cooking grains in which the food preparer sautés the grain briefly in oil or butter and then simmers it in stock or water with various seasonings.
- **Risotto:** Method of cooking arborio rice into a very creamy consistency; the food preparer stirs the rice constantly while adding small amounts of hot liquid, usually flavored broth or water, which are absorbed.
- **Arborio:** A medium-grain rice used in risotto due to its creamy texture when cooked.

Customized Instruction

Learning disabled	Create videos using the steps provided in Essential Skills: Softening Dried Beans and Essential Skills: Making Pilaf.
Academically gifted	Risotto is often known as a prized dish for chefs to conquer, being that it is often revered as difficult to master. Research a variety of ways that different chefs prepare the dish, and create a presentation to reflect the dos and don'ts of making risotto.
ELL	Create a graphic organizer to create or find images to match each of the steps provided in Essential Skills: Softening Dried Beans and Essential Skills: Making Pilaf.

PAGES 176–180 **PASTA AND DUMPLINGS**

Reinforce and Review

- Pasta is made from a paste-like flour and water dough. Eggs, vegetables, or other ingredients may be added to the dough.
- Dumplings are made from a simple dough.
- Ravioli is called pasta, but it's a dumpling.

Discuss

- What are the different types of pastas?
- What is the difference between fresh and frozen pasta?

Vocabulary Review

- **Dumplings:** Cooked balls of dough that often include a filling ingredient, such as pork, vegetables, or even sweets.
- **Pierogi:** Polish dumplings with a savory filling cooked by boiling and then pan-frying.

PAGES 180–181 PREPARING AND COOKING PASTA

Reinforce and Review

- Fresh pasta is used quite commonly in the United States.
- Dried pasta is used quite commonly in the United States.
- Prepare pasta using a dough or batter that always includes a starch and a liquid.
- Add ingredients to pasta dishes to change the shape, color, texture, and flavor.
- Essential Skills: Boiling Pasta lists the steps for boiling pasta. Pasta may stick to the bottom of the pot and stick. Stir the pasta and lift it off the bottom until the rolling boil carries it.

Discuss

- Would fresh or dried pasta be simpler to use in a commercial kitchen?
- What are the advantages and disadvantages of using fresh versus dried pasta in a restaurant or foodservice operation?
- Why might some pastas be red, orange, or green?
- Do students prefer their pasta cooked al dente? Why or why not?

Vocabulary Review

- **Al dente:** Firm to the bite; pasta that is cooked but still firm is al dente.
- **Resting stage:** Stage in which pasta dough is allowed to rest in order to become smooth, elastic, and ready to be rolled out into thin sheets.

Customized Instruction

Learning disabled	Create a poster or graphic organizer to show the *mise en place* timeline with found or created images of choosing, preparing, and cooking both pasta and dumplings. Write a brief response to explain the differences between the two.
Academically gifted	Research the history of pasta making in two different international cuisines, Japan and Italy. What are the similarities and differences? Write a report to share with the class.
ELL	Create a video showing the differences and similarities between choosing, preparing, and cooking both pasta and dumplings.

PAGE 182 COOKING DUMPLINGS

Reinforce and Review

- Pasta is boiled. Dumplings may be boiled or cooked by other methods.
- Pasta and dumplings have a simple starch dough in common.

Discuss

- What is spaetzle?
- How can dumplings be cooked?

Vocabulary Review

- **Spaetzle:** Small German, bread-like dumplings that are often used in stews.
- **Gnocchi:** Small potato dumplings served in Italian cuisine.

Knowledge Check Answers (Page 182)

1. Dried legumes should be stored in a cool, dry, well-ventilated area away from light. (p. 172)
2. Pilaf is a method of cooking grains with first a sauté, then a simmer in stock or seasoned water. Each grain is separate and tender. Risotto is a rice dish that is thick and creamy, cooked in a broth or seasoned liquid and thickened with the starch from the rice. As it cooks, it is constantly stirred. (p. 174)
3. Pasta and dumplings are versatile and convenient. (p. 176)
4. Student responses will vary. The price of dry pasta is lower, and the shelf life is longer. Dry pasta is purchased from a vendor. Fresh pasta may be purchased from a vendor or made in-house. It is softer, has an excellent texture and flavor, and may be more popular with guests. However, it must be refrigerated and used within a couple of days, or it must be frozen for longer storage. It can also be dried completely like dry pasta. Fresh pasta made in-house is labor-intensive and therefore more expensive in that regard as well. (p. 181)
5. Dumplings are prepared from a dough or batter that always includes a starch and a liquid. (p. 182)
6. Spaetzle is a German boiled dumpling. They are small, unfilled, and look like a free-form pasta. (p. 182)

PAGE 183 CASE STUDY FOLLOW-UP ANSWERS: "CULINARY EXPLORATION"

1. Student ideas will vary. Some ideas might include using potatoes in their skins, using smaller potatoes, mixing potatoes in salads, and offering a variety of colorful potatoes. The chef might also consider versions of potato pancakes, skillet potatoes, or hash brown benedicts.
2. Russet potatoes are a good choice for brunch. Russet potatoes are the standard white baking potato. Russet potatoes are good for baking, frying, mashing, roasting, and broiling.

PAGE 184 CHAPTER ACTIVITIES ANSWERS

- **The Mighty Potato:** Students should ask themselves what Alice Waters's statement means about potatoes. Students should refer back to Table 7.1 on page 153 when preparing their speech.
- **Wheatgrass:** The instructions provided may be followed to grow wheatgrass in the classroom. First, check the school district policies concerning living things in the classroom.

- **Converting Pasta Quantities:** Pasta conversions are different for each type of pasta. Choose the type the students will use and determine the correct conversion. The students could do research on this. Roughly, pasta tends to approximately double when cooked to al dente, but this is not accurate enough for a large-scale kitchen. Ten pounds of cooked pasta will be three times the amount of dry pasta. Divide ten by three. You must start with 3.33 pounds of dry pasta to yield 10 pounds of cooked. The conversion factor is 3, found in the pasta rules of thumb. You divide the conversion factor if you know the cooked yield you have or want. You multiply by the conversion factor if you know the amount of dry pasta you will start with and want to determine the cooked pasta yield. However, according to some chefs, pasta only doubles when cooked al dente. To complicate things further, not all shapes of pasta cook at the same rate or yield. Choose a yield conversion factor that you are comfortable with.
- **White Bread vs. Whole Wheat Bread:** Students will need to do online research on the details of white bread and whole wheat bread. Based on their findings, students need to decide if they would serve white or whole wheat bread and the reasons for their choice. Students need to be able to defend their selection with relevant, pertinent facts.
- **The Future of Flour:** This question is asking the students to think and work beyond the text. They might go to actual bakeries to glean information, or use Internet and library resources. They should truly project themselves into the picture, within the possibilities of the student and the area.
- **Gluten Sensitivity:** Regular wheat-based pasta has gluten. Gluten naturally occurs in the wheat and helps give pasta its texture. There are specially made rice, corn, and potato pastas for individuals on gluten-free diets.

PAGE 185 EXAM PREP ANSWERS

1. D (p. 154)
2. C (p. 172)
3. C (p. 156)
4. A (p. 180)
5. A (p. 180)
6. B (p. 182)
7. A (p. 165)
8. A (p. 154)
9. D (p. 158)
10. A (p. 174)

Chapter 8
Teacher's Companion

CHAPTER OVERVIEW

This chapter explains some basic costs that are incurred by restaurant and foodservice operations as well as some common tools used to track and control these expenses.

CHAPTER OBJECTIVES

8.1 Identify the types of costs incurred by a foodservice business and give examples of each.

8.2 Explain the purpose of a budget.

8.3 Explain the purpose of a profit-and-loss report.

8.4 Explain the purpose of invoices in a foodservice business.

8.5 Identify tools to help control costs.

ADVANCE PREPARATION

Review	• Chapter 8, pages 194–215 • Unit case study, "Managing Costs," pages 192–193
Contact	• A guest speaker from a local restaurant who can discuss how his or her operation controls costs • School foodservice director to speak on cost-control measures, budgets, P&L reports, and invoicing
Prepare	• Sample financial statement for budgeting • Sample profit and loss report • Invoices from your food supplier

CHAPTER BREAKDOWN

PAGE 196 INTRODUCTION

Discuss

- Why is it essential for a manager or owner in the restaurant and foodservice industry to understand how to control and plan for necessary costs?
- In what ways are kitchen or dining-room team members responsible for controlling costs?
- Why is it important to maintain appropriate quality standards in all steps of the food-flow process?
- What are some reasons that a popular, well-regarded restaurant might be losing money?
- Is there a point at which a restaurant or foodservice operation might have cut too many costs? How can the management identify this point? What about the employees? What about the guests? What changes might each group notice when costs are cut?

Vocabulary Review

- **Revenue:** The income from sales before expenses, or costs, are subtracted.

PAGES 196–197 COST CONTROL

Reinforce and Review

- In the restaurant and foodservice industry, efficiency often translates as cost control.
- A successful operation must control costs to stay in business. High sales volume alone is no guarantee of a profit.
- Each business must obey the same basic principle: Make more money than it spends. When costs (expenses) are higher than sales (income), the business is losing money.

Discuss

- What is cost control? How is it relevant to all industries, not just the restaurant and foodservice industry?
- "Every action that takes place in a restaurant costs money." Do students agree with this statement? Encourage a debate between those who support and those who oppose this assertion.
- What costs are incurred by both a five-star restaurant and a local waffle cart? What costs might one face that the other does not?

Vocabulary Review

- **Cost control:** A business's efforts to manage how much it spends.

Customized Instruction

Learning disabled	How does your household handle revenue and cost control? Make a list of things that you believe fall under each category. What do you see yourself doing in the future to manage these items?
Academically gifted	How has technology changed cost control? Perform research and write a report based on your findings.
ELL	Create a graphic organizer with created or found images to show what items are involved in revenue and cost control.

PAGES 197–201 **TYPES OF COSTS**

Reinforce and Review

- The four main categories of costs are food costs, beverage costs, labor costs, and overhead costs.
- Food costs, beverage costs, and labor costs each have components related to sales levels and are subject to change based on sales; therefore, they are considered controllable costs.
- Overhead costs do not change based on an operation's sales and are therefore considered noncontrollable costs.
- Video: Types of Costs. For a video on the types of costs, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- What is the difference between controllable and noncontrollable costs? What examples of each do students experience in their own lives?
- Which of the four categories of costs do students think is the most important for a restaurant or foodservice operation to control? Why?
- What are some specific examples of food, beverage, and labor costs that an operation might face?

Vocabulary Review

- **Controllable costs:** Costs that are incurred only when a meal or service is provided to a guest; a manager or chef can manage or adjust these costs based on the operation.
- **Overhead costs:** Costs that do not change, including insurance, utilities, and an operation's lease or mortgage on the building; they are considered fixed, or noncontrollable, costs because managers and chefs cannot adjust them.
- **Fixed/Noncontrollable costs:** Costs of an operation that stay the same and cannot be adjusted by managers or chefs.
- **Food costs:** The cost of food items that a restaurant uses to create a menu item for sale.
- **Beverage costs:** The cost of the ingredients to make a beverage for sale.
- **Labor costs:** The costs of all of the staff (management, front- and back-of-the-house staff), from wages to benefits (insurance, retirement plan, etc.).

Knowledge Check (Page 201)

1. A business's efforts to manage how much it spends.
2. Costs that are incurred only when a meal or service is provided to a guest; a manager or chef can manage or adjust these costs based on the operation, like food and beverage costs or labor costs.
3. Costs of an operation that stay the same and cannot be adjusted by managers or chefs., including insurance, utilities, and rent or mortgage payments.

Customized Instruction

Learning disabled	Create a graphic organizer with created or found images to show which items are a help in defining the following terms: • Controllable costs • Fixed/Noncontrollable costs • Beverage costs • Overhead costs • Food costs • Labor costs
Academically gifted	Working with your instructor, review the types of costs involved in planning and teaching the restaurant management and culinary arts curriculum at your school. How does your instructor plan and pay for items and supplies? What types of costs does your program have? Research the budget and funding, and create a presentation that provides an overview of the types of costs, and how to grow the program with additional revenue or grant funding.
ELL	Perform research online on the following terms to look for images or videos that provide definitions or additional explanations. Then, create a video that connects your research with the terms and presents the information in a fun way. • Controllable costs • Fixed/Noncontrollable costs • Beverage costs • Overhead costs • Food costs • Labor costs

Homework Activity: Literacy

Spending and Saving

In one's personal life, costs don't only involve money; they often involve time. But we still use the same terms: We talk about "spending" time or "wasting" time. The first suggests that time has been used in a positive way, whereas the second suggests that time has been used in a negative way. We also talk about "saving" time, "free" time, and "paying" attention. How does this language affect the way we think about time?

Students should identify some ways in which they can control their use of both money and time in their own lives. What unnecessary expenses can they identify in either category? How does wastefulness play a role?

Over the next week, students should consider how they use their "free" time and money. How does simply being aware of how time and money are spent affect their perspectives on how these resources are used?

Students should write a brief essay describing how their behaviors and emotions were affected by this week-long process.

In-Class Activity: Writing

Advertising Age

Working in groups of three or four, design an advertising campaign for a special offer at an imaginary foodservice operation. You will need to write up a plan describing your campaign and create at least two media products to advertise the special program; these could include table tents, flyers, audio or visual "commercials," and so forth.

Your plan should clearly describe the program or event you are advertising, why you have chosen to design these specific media products, the group of people you wish to attract, and why you think that group of people will be attracted to your advertising and to the operation's special offer.

PAGES 201–209 **MONITORING AND MANAGING COSTS**

Reinforce and Review

- An operating budget lists an operation's anticipated sales revenue and projected costs and gives an estimate of the profit or loss expected for the period.
- Operating budgets have three major roles: They analyze controllable cost needs, outline operating goals and managerial responsibilities, and measure actual performance against anticipated performance.
- An operating budget takes into account all aspects of an operation's finances, including all sales, controllable and noncontrollable costs, employee benefits, and depreciation.
- Most operating budgets are based on forecasts.
- Budgets and P&L statements are very similar; however, budgets project what managers expect to happen, whereas P&L statements record what has actually happened.
- Operational records, such as sales histories and production sheets, are used to determine what happened in the past and to predict future needs.
- It's important to be careful when forecasting needs. Sales one week do not necessarily translate into the same sales next week.
- The moving average technique averages together sales information for two or three recent and similar sales periods to determine a more accurate prediction of future sales.
- A profit and loss report, or income statement, helps managers gauge an operation's profitability as well as compare actual results to expected goals.
- A profit and loss report reflects what actually happened during a particular time period, whereas a budget predicts what is expected to happen during that period.
- Video: The Operating Budget: The video shows how the operating budget works to control costs. To view, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- How can an operating budget help a business anticipate future expenses? What are some other steps a business can take to predict upcoming costs?
- Encourage students to discuss the differences between actual and anticipated performance. Why do differences between the two exist at all? How can actual performance improve to match anticipated performance?
- Encourage students to discuss the role of forecasts in budgeting. What is the difference between a forecast and a guess?
- What types of historical data are used to plan restaurant operations? How are historical data relevant in students' lives?
- How is a sales history related to a production sheet? Which do students think is the more important document?
- Encourage students to identify factors that could affect an operation's sales.
- What does it mean when the profit and loss report provides information that is significantly different from the budget's original predictions? How can the situation be remedied?

Vocabulary Review

- **Operating budget:** A financial plan for a specific period of time; most budgets cover one year and are broken into months.
- **Depreciation:** A loss of value over time; for example, a brand-new machine is worth more than one that is several years old, much like the value of a new versus a used car.
- **Forecast:** A tool that managers use to look at current business trends (revenue, costs) and to predict how these changes will affect the operating budget in the future.
- **Historical data:** Information related to the restaurant's past performance.
- **Customer count:** The number of customers an operation serves.
- **Average sales per customer:** The amount of money the average customer spends per visit to a restaurant, which is calculated by the total dollar sales divided by the total number of customers.
- **Sales history:** A record of the number of portions of every item sold on a menu.
- **Moving average technique:** A smoothing technique managers use that helps to average sales information over a period of several months in order to produce a more accurate forecast.
- **Production sheet:** A sheet listing all menu items that are going to be prepared for a given date that helps to make sure a kitchen is producing the right amount of product.
- **Point-of-sale (POS) systems:** Software that allows a business to track sales and inventory and analyze sales data in order to save time and money and make more accurate decisions for the business.
- **Profit and loss report:** A compilation of sales and cost information for a specific period of time that shows whether an operation has lost or made money for that time period, and also shows whether an operation performed as the budget predicted it would. A profit and loss report, also known as a P&L report or statement, lists sales income first and then lists all expenses.

- **Invoice:** A bill received by the restaurant for something purchased for use, such as food deliveries and cleaning supplies.
- **Packing slip:** A list of items, often separate from the invoice, showing quantities of items received.

Customized Instruction

Learning disabled	Create a graphic organizer for the key terms in this section using images or videos to show the definitions in action. Keep notes to show how the image or video helps define the term. • **Operating budget:** A financial plan for a specific period of time; most budgets cover one year and are broken into months. • **Depreciation:** A loss of value over time; for example, a brand-new machine is worth more than one that is several years old, much like the value of a new versus a used car. • **Forecast:** A tool that managers use to look at current business trends (revenue, costs) and to predict how these changes will affect the operating budget in the future. • **Historical data:** Information related to the restaurant's past performance. • **Customer count:** The number of customers an operation serves. • **Average sales per customer:** The amount of money the average customer spends per visit to a restaurant, which is calculated by the total dollar sales divided by the total number of customers. • **Sales history:** A record of the number of portions of every item sold on a menu. • **Moving average technique:** A smoothing technique managers use that helps to average sales information over a period of several months in order to produce a more accurate forecast. • **Production sheet:** A sheet listing all menu items that are going to be prepared for a given date that helps to make sure a kitchen is producing the right amount of product. • **Point-of-sale (POS) systems:** Software that allows a business to track sales and inventory and analyze sales data in order to save time and money and make more accurate decisions for the business. • **Profit and loss report:** A compilation of sales and cost information for a specific period of time that shows whether an operation has lost or made money for that time period, and also shows whether an operation performed as the budget predicted it would. A profit and loss report, also known as a P&L report or statement, lists sales income first and then lists all expenses. • **Invoice:** A bill received by the restaurant for something purchased for use, such as food deliveries and cleaning supplies. • **Packing slip:** A list of items, often separate from the invoice, showing quantities of items received. Teacher note: It may be useful to provide the definitions to the students, and allow them to convert the text into images for additional understanding.

(continued)

Academically gifted	Design a POS machine that functions as an all-in-one financial accounting machine, from paying invoices to calculating budgets. Using all of the key terms from this section, write a description of the machine as a piece of advertising to sell the product to restaurants.
ELL	Create a graphic organizer to show the actions involved in the key terms from this section, in relation to cost control. Use the definitions provided to transform the words into live action. • **Operating budget:** A financial plan for a specific period of time; most budgets cover one year and are broken into months. • **Depreciation:** A loss of value over time; for example, a brand-new machine is worth more than one that is several years old, much like the value of a new versus a used car. • **Forecast:** A tool that managers use to look at current business trends (revenue, costs) and to predict how these changes will affect the operating budget in the future. • **Historical data:** Information related to the restaurant's past performance. • **Customer count:** The number of customers an operation serves. • **Average sales per customer:** The amount of money the average customer spends per visit to a restaurant, which is calculated by the total dollar sales divided by the total number of customers. • **Sales history:** A record of the number of portions of every item sold on a menu. • **Moving average technique:** A smoothing technique managers use that helps to average sales information over a period of several months in order to produce a more accurate forecast. • **Production sheet:** A sheet listing all menu items that are going to be prepared for a given date that helps to make sure a kitchen is producing the right amount of product. • **Point-of-sale (POS) systems:** Software that allows a business to track sales and inventory and analyze sales data in order to save time and money and make more accurate decisions for the business. • **Profit and loss report:** A compilation of sales and cost information for a specific period of time that shows whether an operation has lost or made money for that time period, and also shows whether an operation performed as the budget predicted it would. A profit and loss report, also known as a P&L report or statement, lists sales income first and then lists all expenses. • **Invoice:** A bill received by the restaurant for something purchased for use, such as food deliveries and cleaning supplies. • **Packing slip:** A list of items, often separate from the invoice, showing quantities of items received.

In-Class Activity: Literacy

Student Selections

Working with two or three other students, design a restaurant or foodservice operation that you think would appeal to other students and become a financial success. Describe the menu choices, service style, and ambiance. What in particular would attract students?

Present your design to the class, using any visual aids you think appropriate. After all the groups have given their presentations, vote as a class on which operation would be the biggest success.

PAGES 210–211 **COST-CONTROL TOOLS**

Reinforce and Review

- In the kitchen, measuring, monitoring, portioning, and weighing equipment can be used to help control costs.
- Time clocks and POS systems can help control labor costs throughout the operation.
- POS systems also help track sales, as do cash registers.
- Programs can be used to complete the calculations required in cost planning, controlling sales and inventory, and focusing on the menu.
- When choosing technology, managers should ask the following: Will it help enhance guest satisfaction? Will it help increase revenue? Will it help reduce costs? Will it increase employee or management productivity? Will it improve communications?
- If used effectively, technology can help control costs, increasing an operation's efficiency.

Discuss

- How can portioning and measuring equipment help control costs? What can happen if the equipment is being used incorrectly?
- How can the proper use of schedules both control labor costs and improve employee relations?
- How can managers make sure that all employees are following house policies that have been installed to control costs?
- Advances in computer software can help managers obtain accurate, timely information, but only if the data have been entered correctly into the program. What are some other potential flaws?
- How can managers select the technology that is most appropriate for their operation? Do all operations need computer software to run their business? Why or why not?
- In what ways can using technological advances increase revenue and decrease costs?

Vocabulary Review

- **Full-line supplier:** A one-stop shop that provides equipment, food, and supplies. Some full-line suppliers also have programs available to customers that help with controlling costs.

Customized Instruction

Learning disabled	Perform research to see what technology-based products are marketed to restaurant operators in today's market. Make a list describing the product and what functions they advertise that they can assist with in cost control–related matters.
Academically gifted	Design a training program for employees to show the difference between measuring by weight and measuring by volume, using the particular framework of cost control. Create a presentation in the format of your choice.
ELL	Review an advertisement or website for a full-line supplier. Identify as many cost control–related tools as you can. Make a list of the items and explain what they do to control costs.

Knowledge Check Answers (Page 211)

4. Cost control is a business's efforts to manage how much it spends.
5. The four main costs are food, beverage, labor, and overhead.
6. An operating budget helps manage an operation by analyzing controllable cost needs, outlining operating goals and managers' performance responsibilities, and measuring actual performance against anticipated performance.
7. Tools available to help control cost are portioning equipment, time clocks, and POS systems.

Homework Activity: Math

Expenses of a National Chain

Research a national restaurant or foodservice operation. Write a report covering the following elements:

- The organization's mission
- The type of food it serves
- The service style it employs
- The budget for labor
- The budget for food
- The locations it generally seeks out

In-Class Activity: Math

Profit and Loss

Michael's is an Italian restaurant and banquet hall with total annual revenue of $636,050. The banquet department is responsible for bringing in 34 percent of the operation's total revenue and has total annual expenses of $96,300. Based on this information, calculate the revenue generated by the banquet department last year.

Answer: 636,050 × 0.34 = 216,257 – 96,300 = $119,957 in revenue

PAGE 212 CASE STUDY FOLLOW-UP ANSWERS: "MANAGING COSTS"

1. Student responses may vary, as long as they defend their answers in a clear and logical manner. Judy and Chef Mike should consider the following controllable costs when starting their cost-control efforts: product and food costs, beverage costs, and labor costs.
2. An operating budget helps manage an operation by analyzing controllable cost needs, outlining operating goals and managers' performance responsibilities, and measuring actual performance against anticipated performance.

PAGE 213 CHAPTER ACTIVITIES ANSWERS

- **How Do They Do It Where You Live?:** Students need to contact and interview a local restaurant owner and manager and ask them about creating a budget, forecasting, monitoring food and labor costs, and what systems they use. During the interview, students should take notes. After the interview, students should write a one-page paper sharing details of the interviewee's responses.
- **Frost and Fruit:** Climate factors such as weather and temperature, pests and disease, transportation costs, labor costs, and political and economic factors affect food costs. Students need to brainstorm and/or research ways a foodservice operation would address these factors.
- **Are You Making Money?:** The restaurant is operating at a loss this month. The costs ($20,800) exceed the sales ($20,550). Because the costs are higher than its sales, the restaurant is losing money.
- **What Counts?:** Students should identify a local quick-service restaurant and determine some of its expense categories. The factors they highlight could include such elements as staffing, food costs, or insurance, so long as they give solid reasons why these are among the top five elements.
- **Which Works Best?:** Student answers will vary. The important thing is that they define their choice of a POS system for a fine-dining restaurant in a clear and logical manner. Students can refer to page 206.
- **Start-Up Costs:** Students will need to research demographic and economic information for the community they select. They should be sure to describe why they believe a particular type of restaurant would succeed and defend their expense allocations.

PAGE 214–215 EXAM PREP ANSWERS

1. D (p. 196)
2. D (p. 197)
3. A (p. 208)
4. A (p. 203)
5. B (p. 200)
6. A (p. 203)
7. C (p. 206)
8. C (p. 206)
9. B (p. 201)
10. A (p. 197)

Chapter 9
Teacher's Companion

CHAPTER OVERVIEW

This chapter discusses how to control foodservice costs in greater detail, such as by correctly determining food costs and menu pricing. Quality standards used throughout the restaurant and foodservice industry are also discussed in detail.

CHAPTER OBJECTIVES

9.1 Define and calculate food cost and food cost percentage.

9.2 Develop a recipe cost card for a standardized recipe.

9.3 Calculate a recipe's yield and the number of portions it will produce.

9.4 Use a conversion factor to calculate a new yield for an existing recipe.

9.5 Explain the importance of portion control to food cost.

9.6 Explain the food cost percentage method for menu pricing.

9.7 List and describe purchasing, receiving, and storage procedures that help to preserve quality and control costs.

9.8 List ways to evaluate a finished product for quality.

9.9 Explain the importance of inventory value as it relates to cost control.

ADVANCE PREPARATION

Review	• Chapter 9, pages 216–237 • Unit case study, "Managing Costs," pages 192–193
Contact	• Math instructors • Accountants • Foodservice Director
Prepare	• Additional sample recipes and cost information from invoices • Sample inventory worksheets

CHAPTER BREAKDOWN

PAGE 218 INTRODUCTION

Discuss

- When guests patronize an operation, what are they really buying? Is it "worth it" to pay more for a different atmosphere, level of service, quality of ingredients, convenience, and so forth? In what sense is the customer really buying an experience, not a meal?
- How do customer expectations of a meal vary depending on where it is purchased? Is a glass of soda "always" a glass of soda?
- The quality of ingredients, care of preparation, expertise in cooking, and quality of service can all add up to a higher, and just, price point on a menu.
- Not all extra expenses are legitimate. Some operations might try to compensate for other inefficiencies when pricing their dishes, or they might not understand the pricing process.
- Essential skills in controlling food costs include calculating the price of food, assessing the cost of recipes, and valuing food appropriately on the menu.

PAGES 218–219 STEPS IN CONTROLLING FOOD COSTS

Reinforce and Review

- The nine stages in the food flow process are purchasing, receiving, storing, preparation, cooking, holding, cooling, reheating, and service.
- Establishing quality standards in purchasing is essential in acquiring and producing consistent, top-quality product.
- Receiving only those products that meet quality standards and accurately fulfill an order is an important component of controlling costs.
- Proper storage prevents loss of food through spoilage and waste.
- Efficient issuing systems, or inventory controls, record what product is being used when, by whom, and for what purpose, thereby tracking sales and reducing opportunities for pilferage.
- Accurate preparation, production, and portioning of food all help to prevent inefficiency and waste.
- Mistakes made at the service level can both directly and indirectly contribute to increased food costs.

Discuss

- How can following proper food safety principles help control food costs? How can kitchen staff help control food costs before they have even begun to prepare the food?
- Close attention to the flow of food is helpful in controlling food costs. At what steps in this process are costs most vulnerable; that is, at what points is the operation most likely to spend money on food that will not earn money?
- Consider how food is prepared in the classroom kitchen. What examples of waste and inefficiency have you noticed? How could these be eliminated?

Customized Instruction

Learning disabled	Using Figure 9.1 on page 218, create a graphic organizer with images to define the flow of food in the chart shown as a guideline. How can you connect cost control to these steps?
Academically gifted	Using the information from the Industry sidebar, research the companies and chefs referenced, and research techniques they may have used to lower food costs. Write a report with your research. When Boston rising star Chris Chung opened his restaurant AKA Bistro in Boston's Lincoln Park, he anticipated his food cost to be at 33 percent the first month, but planned to reduce it to 30 percent afterward. Similarly, Las Vegas rising star Zach Allen, who heads up the kitchens of all three of Mario Batali and Joe Bastianich's Las Vegas outposts, was able to lower his food cost at all three venues in a year: Enoteca San Marco runs at 24 percent; B+B Ristorante at 28.5 percent (lower than its targeted 30 percent); and Carnevino at 30.5 percent (also lower than its target of 32 percent—a rarity for a steak house).
ELL	Create a video that shows the action in the food flow process: purchasing, receiving, storing, preparation, cooking, holding, cooling, reheating, and service.

Homework Activity: Literacy

Family Food Finances

Controlling costs isn't only an issue in the workplace; it's equally important at home.

Consider your family's food spending. Identify five ways in which spending can be controlled and food purchases can be made more efficiently. You might wish to consult with the person in your household who purchases the bulk of the family's food to gain some insights.

Write a brief report describing your findings and how they can help your household finances.

Homework Activity: Literacy

Shaker Your Plate

There is an old saying, "Shaker your plate," which means to eat every crumb of what is served to you. The spirit of this adage goes further: To "shaker your plate" means to use all your resources as effectively as possible, wasting nothing and utilizing everything.

How can restaurant and foodservice operations use this proverb to inspire employees and managers to reduce waste and cut costs in the kitchen and dining room? Is this a useful approach, or could it backfire?

Write a brief essay describing how and why restaurant and foodservice operations might use "shaker your plate" to motivate their employees.

PAGES 219–220 **DETERMINING FOOD COST**

Reinforce and Review

- Food cost includes the cost of food sold, given away, wasted, spoiled, incorrectly prepped, overportioned, overproduced, or pilfered.
- Opening and closing inventory data are used to determine the value of the food cost.
- The total food available for sale includes the opening inventory and the purchases made during that period.
- The total food available for sale, minus the closing inventory, equals the total food cost.
- Total food cost percentage is often the standard against which food cost is judged and is usually a target determined by management.
- To determine the food cost percentage, divide total food cost by sales.
- Food cost is a variable cost, which means it should increase or decrease in direct proportion to an increase or decrease in sales, all other things being equal.
- When all cost controls are followed properly, food cost and sales will be proportionate.
- Video: Determining Food Cost and Percentages: For a video on determining food cost and percentages, please go to: *Textbooks.Restaurant.org/Videos*.
- Video: Determining Standard Portion Costs: For a video on determining standard portion costs, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Is it really possible for managers and employees to keep track of every mouthful of food, when opportunities for waste are so abundant in many kitchens? How accurate is the food cost?
- Why do students think that inventory is rarely taken on a daily, quarterly, or annual basis?

Vocabulary Review

- **Inventory:** The food product in storage, which can be expressed in terms of units, dollar values, or both.
- **Opening inventory:** The physical inventory at the beginning of a given period.
- **Closing inventory:** The inventory at the end of a given period.
- **Total food cost percentage:** The relationship between sales and the cost of the food that went into those sales. Food cost percentage can be analyzed by comparing it to company standards, historical costs, or even industry standards. In most cases, the standard food cost percentage is a target determined by management. The formula is: Total food cost ÷ Food sales = Food cost percentage.

Customized Instruction

Learning disabled	Create a word wall with images to show the items and actions for the following key terms: • **Inventory:** The food product in storage, which can be expressed in terms of units, dollar values, or both. • **Opening inventory:** The physical inventory at the beginning of a given period. • **Closing inventory:** The inventory at the end of a given period. • **Total food cost percentage:** The relationship between sales and the cost of the food that went into those sales. Food cost percentage can be analyzed by comparing it to company standards, historical costs, or even industry standards. In most cases, the standard food cost percentage is a target determined by management. The formula is: Total food cost ÷ Food sales = Food cost percentage.
Academically gifted	Volunteer to help take inventory at a local shelter, food bank, or other nonprofit food-related business. Record the process in a response, or a video journal.
ELL	Create a graphic organizer to show the steps in calculating the following key terms: • **Inventory:** The food product in storage, which can be expressed in terms of units, dollar values, or both. • **Opening inventory:** The physical inventory at the beginning of a given period. • **Closing inventory:** The inventory at the end of a given period. • **Total food cost percentage:** The relationship between sales and the cost of the food that went into those sales. Food cost percentage can be analyzed by comparing it to company standards, historical costs, or even industry standards. In most cases, the standard food cost percentage is a target determined by management. The formula is: Total food cost ÷ Food sales = Food cost percentage.

PAGES 221–222 ESTABLISHING STANDARD PORTION COSTS

Reinforce and Review

- If an operation does not cost out its standardized recipes, then the selling price will be only a guess.
- Essential Skills: How to Determine Standard Portion Cost discusses how to calculate the standard portion cost.

Discuss

- Essential Skills: How to Determine Standard Portion Cost uses the example of a tomato sauce recipe. Does this example use the AP method or the EP method? How can you tell? Why might one be a better choice than the other?
- Why is it important to record every ingredient used in a standardized recipe, even inexpensive items like salt?

Vocabulary Review

- **Recipe cost card:** A table of ingredient costs for each item in a standardized recipe that is a tool used to calculate the standard portion cost for a menu item. Recipe cost cards are a key control in getting the proper relationship between a menu item's cost and selling price; there should be a recipe cost card for every multiple-ingredient item listed on the menu.

Customized Instruction

Learning disabled	Using the steps to determine standard portion costs, create an educational video, using the physical ingredients for tomato sauce listed in the example to show how to find the cost.
Academically gifted	Interview the foodservice director on the system used to create recipe cost-control methods for the food and nutrition department at your school. Write a report on the interview and your findings, and compare this to the sample recipe cost card provided in Figure 9.2.
ELL	Using Figure 9.2, the recipe cost card for macaroni and cheese, create a video that shows how to determine the standard portion cost from the information provided. Show how to reach the answers provided in the card, and explain this to the viewers in your video "diary."

Homework Activity: Math

Recipe Cost Cards

Select a recipe from this textbook and create a recipe cost card for it. Identify the portion cost, portion size, and total recipe cost. Make sure your math is accurate.

PAGE 223 RECIPE YIELDS

Reinforce and Review

- To determine how many portions a recipe yields, calculate the total yield of the recipe either by weight or by volume.
- Weigh or measure only the major ingredients in a recipe, and remember to factor in cooking loss as well as cooking gain.
- Negligible ingredients, like salt, are not typically used to calculate recipe yields, although they are important in calculating recipe costs.
- Employees at successful restaurant and foodservice operations must know how to properly calculate recipe yields. This helps an operation effectively manage its inventory, revenues, and costs.
- Once a yield is known and properly followed, it's easier to increase or decrease the size of the recipe, based on operational needs.

Discuss

- Encourage students to suggest other recipes that will be affected either by cooking loss or by cooking gain. Why is it important to understand how different ingredients behave when cooked? How can this affect recipe cost?
- The text notes that negligible ingredients, such as salt and seasonings, are not typically included when calculating recipe yields. Why not? How does a cook or manager determine what ingredients are negligible and which are not?
- If negligible ingredients are not important enough to factor into a recipe's yield, why are they used to calculate a recipe's cost?

Customized Instruction

Learning disabled	What is the difference between portioning ingredients by weight and by measure? Revisit this important technique, and create a poster or video explaining the difference. How does this affect the way we cost ingredients?
Academically gifted	Research the technologies available today to assist in calculating costs. Describe your findings in a report, detailing the major elements of each program, and what major industry operators use in their own businesses.
ELL	Work in pairs or groups to use the example for calculating the recipe yield to show the steps described with ingredients, to calculate the yield. Use screenshots or photos to create a presentation or film a video. Show the preparation and cooking process, as listed in each step or example for the macaroni and cheese recipe on page 223.

Homework Activity: Math

Converting Recipes

Select two different recipes in this textbook. Convert each recipe to serve 12 people, 40 people, and 150 people.

Submit copies of the standardized recipes you have used along with your conversions.

Teacher note: See the student Activity Guide for more related activities.

PAGE 224 **CONVERSION FACTORS**

Reinforce and Review

- Cooks and managers often increase or decrease recipe yields to meet an operation's needs.

Discuss

- What are some ways converting recipe yields can affect cost?
- What can happen if the conversion is not done properly?

Customized Instruction

Learning disabled	Create a graphic organizer with images to illustrate the information in Table 9.1, for the steps to converting recipe yields.
Academically gifted	Perform research online to find examples from chefs or restaurant operators of scenarios where the math was incorrect and created a problem or memorable situation. Collect your research in a presentation to share with the class. Teacher note: This activity can be adjusted for the whole classroom by pairing or grouping students by tiers or interest. Possible useful links: • https://www.nytimes.com/2015/06/14/books/review/how-to-bake-pi-by-eugenia-cheng.html?_r=0 • http://www.learner.org/interactives/dailymath/cooking.html • http://mathforgrownups.com/math-at-work-monday-amy-the-pastry-chef/ • http://www.intel.com/content/dam/www/program/education/us/en/documents/project-design/fractions/fraction-chef.pdf
ELL	Create a video or skit to demonstrate the information in Table 9.1, for the steps to converting recipe yields. Use real ingredients or props to show the actions described in each step.

PAGES 224–225 CONTROLLING PORTION SIZES

Reinforce and Review

- Although some employees might believe they "know" exact portion sizes, it's critical to use portioning devices to ensure that dishes are consistently prepared and that cost structures are being followed.
- Portions can be controlled by weight, volume, or count.
- When possible, preportion items before service; however, this should only be done in cases when quality will not be diminished. In general, the more preportioning that can be done, the more control the kitchen will have over its food costs.
- Every operation should strive to produce quantities as close as possible to the quantity actually needed to maintain standard food costs and sales.
- Although leftovers often represent a waste in terms of food cost, running out of products during service can be equally dangerous for an operation's finances.

Discuss

- How can failing to control portion size jeopardize an operation's entire financial status?
- How can failing to control portion size affect customers and their expectations?
- What are some examples of portions typically controlled by weight? By volume? By count?
- What are some foods that could and should be preportioned? What are some foods that should not be preportioned? What are the differences between the two categories?
- How can leftover mashed potatoes be reused? What about raw chicken breasts? Cooked carrots?

Vocabulary Review

- **Preportioned items:** Menu ingredients that have been accurately portioned prior to service; preportioning items before serving is another mechanism for ensuring that portions are the right size.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show how the various tools control costs through portioning. Explain the function of each item, and how it works to control costs. • Scoops • Ladles • Serving spoons • Serving dishes • Ramekins, bowls, cups, and so on • Portion scales

(continued)

Academically gifted	Use the following prompt to research and create a presentation on food waste. The U.S. Department of Agriculture estimates food waste in the United States to be approximately 31 percent—or 133 billion pounds—of the overall food supply available to retailers and consumers. Experts have projected that reducing food losses by just 15 percent would provide enough food for more than 25 million Americans every year.
ELL	Create a video or skit to demonstrate how the various tools control costs through portioning. Explain the function of each item, and how it works to control costs. • Scoops • Ladles • Serving spoons • Serving dishes • Ramekins, bowls, cups, and so on • Portion scales

Knowledge Check Answers (Page 225)

1. The formula for total food cost is:

   (Opening inventory + Purchases = Total food available) – Closing inventory = Total food cost

2. Determining the food cost percentage directly affects the operation's profitability.
3. A conversion factor is needed to convert recipe yields:

   Desired yield ÷ Original yield = Conversion factor

4. It is important to control portion sizes to control food cost and profitability.
5. A standard portion size determines a standard portion cost, which is the exact amount that one serving, or portion, of a food item should cost when prepared according to the item's standardized recipe. To calculate an accurate selling price, you need to calculate an accurate cost per portion. This will help you determine if your sales are contributing to your profitability.

In-Class Activity: Math

The Perils of Improper Portioning

Haiya's Place recently added a beef tenderloin dish to its menu. The dish, which includes a 5-ounce portion of beef, sells for $21.

On the first day this item was offered, the butcher looked at the food production chart to see how many portions of beef she needed to prepare for service. The manager who had completed the form had been in a hurry, and her handwriting had smeared: the "5-oz portion" looked like "8-oz portion." So the butcher proceeded to cut 8-ounce portions of beef.

The fifteenth and final 8-ounce portion of beef tenderloin was being plated for a guest before the sous chef realized that the portion size was incorrect.

(continued)

How many 5-ounce portions of tenderloin could have been obtained from the fifteen 8-ounce portions served? How much revenue did the restaurant lose by not selling those additional portions? How could this problem have been prevented? What aftereffects might this situation have on staff and guests?

15 × 8 = 120 oz

120 oz ÷ 5 oz = 24 portions, versus 15

24 – 15 = 9

9 × $21 = $189 (Total loss of 9 entrées retailing at $21 = $189 lost in sales)

PAGES 226–227 **MONITORING PRODUCTION VOLUME AND COST**

Reinforce and Review

- A well-structured food production chart can ensure product quality, avoid product shortages, and minimize waste, spoilage, theft, energy costs, and administrative costs.
- Sales history is critical in helping management forecast how many portions of each menu item to produce on a given day, but it is a prediction, not a guarantee. A sales history is generated by tracking sales of a particular item over time.
- The menu is the primary sales tool in most restaurant and foodservice operations and should reflect the overall cost of running the operation.
- The price of an item should include all of the costs associated with purchasing, preparing, and serving the item, as well as costs such as utilities, labor, and rent.
- The success of an operation hinges on proper menu pricing.

Discuss

- Besides sales history, what other tools do managers have to help forecast sales volume?
- Why is it important to estimate what sales will be for a given service period? How can this estimate affect an operation's food costs?
- If the chicken dish usually represents 22 percent of sales, and 180 guests are expected, how many orders of chicken should the staff prepare to avoid running out of the item? Why? Explain how many orders of each of the other dishes should be prepared as well.
- Explain how and why the menu is an operation's primary sales tool.

Customized Instruction

Learning disabled	Use the example for using sales histories to control costs on page 227 to create a graphic organizer with images to illustrate the steps to using a sales history. Create or find images that represent each element of the steps and bullet points.
Academically gifted	Use the Did You Know sidebar on page 227 on common myths linked to food cost as a starting point for research into other myths or misconceptions in the industry on food cost or controlling costs. Analyze your findings in a response.
ELL	Use Figure 9.6 on page 226 to create a video or skit that shows the action, item, or equipment that is linked to the information on a production sheet. Define each element, and explain how and why production sheets are an important tool in controlling costs.

PAGES 228–230 **QUALITY STANDARDS FOR PURCHASING, RECEIVING, AND STORING**

Reinforce and Review

- Choosing a credible supplier is key to obtaining high-quality products.
- Before ordering a product, managers should identify its intended use, or how it will be used, developed, or consumed; this is the product's most important characteristic.
- Specification sheets describing the criteria a given product must meet should be developed in accordance with the product's intended use.
- Products should be received in the most efficient, safe, and effective way possible.
- Deliveries should be scheduled for times when the operation is slow, so employees do not have to choose between caring for food and serving guests.
- The frequency of deliveries can help preserve food quality.
- The operation's menu and service style affect the frequency of deliveries. Freshness is important, but so is the cost of the labor used to receive products.
- Well-defined receiving procedures ensure that an operation receives only the products that meet its established standards for quality and quantity and rejects products that do not meet these standards.
- Implementing appropriate receiving practices helps prevent product deterioration, which can lead to spoilage and higher food costs.
- Receiving staff should check deliveries against both the original purchase order and the invoice before accepting products.
- All deliveries should be inspected for accuracy and quality, and prices should be double-checked.
- The goal of proper receiving is to ensure the correct product, quality, and quantity at the correct price.
- Perishable foods should be monitored daily to ensure freshness; schedules should be followed regularly to ensure that every product is being used safely and efficiently.

- Storage facilities should also be monitored regularly to ensure that they are clean and functioning properly.
- Video: Receiving Procedures: For a video on the steps to controlling costs through proper receiving procedures, go to *Textbooks.Restaurant.org/Videos*.
- Video: Storage Practices: For a video on the steps to controlling costs through proper storage practices, go to *Textbooks.Restaurant.org/Videos*.

Discuss

- Many suppliers can provide similar products. What are the qualities that a manager should look for when choosing suppliers?
- Should operations always purchase the highest-quality ingredients, regardless of the items' intended uses? What are some situations in which the "best" might not be the best choice?
- Employees should be trained on proper receiving practices. What should this training involve?
- Some guidelines for receiving specifications are listed on page 229. What is the rationale for each specification? Why should some items be ordered more frequently than others?
- Why is it important to examine all deliveries carefully? What are the potential ramifications of accepting products that should have been rejected?
- Unfortunately, sometimes deliveries arrive when all staff members are busy with service. Which should take precedence, proper receiving practices or quality guest service? Why?
- Which is more important to a restaurant or foodservice operation's food cost: receiving or storing?

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the examples found on pages 228 and 229 for the guidelines for proper delivery and receiving techniques. Use a series of images to show the action described in each point.
Academically gifted	Develop a series of specifications for delivery, receiving, and storing techniques that fit the needs of your classroom. If necessary, work with the school foodservice director to develop specifications that fit the needs of the various school foodservice operations. Identify points that can assist the operation in controlling costs, and create a training program that would teach employees the proper steps.
ELL	Create a video, skit, or presentation that shows how to properly control costs using the guidelines for delivery, receiving, and storing techniques. Use props or ingredients to relay the action steps described in each guideline.

PAGE 231 QUALITY STANDARDS FOR FOOD PRODUCTION AND SERVICE

Reinforce and Review

- Prior to service, managers should taste each item to ensure that it meets the operation's standards; certain fragile items should be checked throughout service as well.
- Visual evaluation before serving a dish allows management to correct minor problems and identify larger ones.
- The key to identifying deviations from standard recipes and presentations is regular monitoring and the understanding by the staff that it is the responsibility of everyone in the operation to ensure quality.
- When a problem's cause or causes are diagnosed, the manager must work with the entire staff to implement the correction.
- Failure to find the root cause of a problem will lead to increased cost through food waste, lower staff productivity, and possibly loss of customer base.
- The faster a problem is identified and a correction is made, the more costs will be kept under control.

Discuss

- What are some examples of foods that should be checked or freshly made periodically throughout service?
- Managers sometimes identify problems with dishes just before they are served. What are their options at this stage of service? Why might one option be chosen over another?
- Are dishes with quality problems ever served? Why? How can this affect a restaurant's reputation? What effect can this have on employee morale?
- If all staff members are actively engaged in providing quality service in all its forms, how do problems occur in the first place?

Customized Instruction

Learning disabled	Create a graphic organizer with images for the five paragraphs under the Quality Standards for Food Production and Service heading on page 231 to illustrate how and why to develop and check quality standards for production and service to control costs.
Academically gifted	Research quality standards for production and service at major foodservice industry operations. For example, most chain restaurants serve items that are uniform in presentation nationwide, like a Big Mac at McDonald's. Choose several items that are familiar to you as a consumer, and guide your research to explain how the product specifications and standards for production and service relate to your experience as a consumer. Postulate a response on how you think the specifications and standards connect to the larger concept of controlling costs.
ELL	Using the five paragraphs under the Quality Standards for Food Production and Service heading on page 231, develop a video or skit to show how and why to develop and check quality standards for production and service to control costs.

Homework Activity: Science

Food Safety and the Food Flow Process

An important component of controlling costs is keeping a close eye on anything that could become a potential problem, because problems cost money. From a food safety perspective, what problems could arise during the food flow process? In particular, what illnesses can spread to customers and employees as a result of errors made?

Write a two-page report on food safety issues in the flow of food and how these can increase a restaurant's costs. Consider the costs of waste, spoilage, negative publicity, lost customers, and legal fees, as well as any other relevant costs, in your answer.

Homework Activity: Writing

Problem-Solving Skills

A local operation has recently experienced a significant increase in the number of dishes being returned to the kitchen by irate guests. Due to financial troubles, many of the kitchen and dining-room staff members are new, and the managers are overworked and stressed by the situation. Morale is low, and sales volume has fallen.

The operation has hired you as a consultant. Using the seven-step problem-solving model, help identify the root cause of the operation's troubles and find workable solutions. Describe your process in a one-page essay.

PAGE 232 QUALITY STANDARDS FOR INVENTORY

Reinforce and Review

- Closely monitor inventory to ensure that products are ordered as they are needed.
- Operations that know what products have been purchased, when they were purchased, and how long they've been in-house are more likely to effectively use the FIFO system.
- Minimizing waste keeps costs down as the use of only the freshest products keeps sales high.
- Determining food costs relies on knowledge of the opening and closing inventory figures for each period.
- There are four methods to calculate closing inventory: latest purchase price, actual purchase price, weighted average purchase price, and last in, first out.
- Depending on the technique used to calculate closing inventory, values will vary slightly.

Discuss

- What are the advantages and disadvantages of using each method of calculating closing inventory? Which technique seems most accurate?

Vocabulary Review

- **Physical inventory:** The number of each item in the restaurant.

- **Latest purchase price:** Method of determining the value of closing inventory in which the number of units of each item is multiplied by the most recent price paid for the item. This method is one of the quickest ways to determine inventory.
- **Actual purchase price:** Method of determining the value of closing inventory in which the number of units of each item is multiplied by the price actually paid for each unit. This method is more accurate than the latest purchase price, as it takes into account price changes over the period; however, it is more time consuming to track the price changes.

Customized Instruction

Learning disabled	Create a graphic organizer with images to illustrate the following key terms and definitions, listed below: • **Physical inventory:** The number of each item in the restaurant. • **Latest purchase price:** Method of determining the value of closing inventory in which the number of units of each item is multiplied by the most recent price paid for the item. This method is one of the quickest ways to determine inventory. • **Actual purchase price:** Method of determining the value of closing inventory in which the number of units of each item is multiplied by the price actually paid for each unit. This method is more accurate than the latest purchase price, as it takes into account price changes over the period; however, it is more time consuming to track the price changes.
Academically gifted	Create a presentation that shows the dos and don'ts of taking inventory and calculating purchase prices. Use images or videos to show best practices and those that are not best practices.
ELL	Create a skit or video to show how to define the key terms with action, using the definitions listed below: • **Physical inventory:** The number of each item in the restaurant. • **Latest purchase price:** Method of determining the value of closing inventory in which the number of units of each item is multiplied by the most recent price paid for the item. This method is one of the quickest ways to determine inventory. • **Actual purchase price:** Method of determining the value of closing inventory in which the number of units of each item is multiplied by the price actually paid for each unit. This method is more accurate than the latest purchase price, as it takes into account price changes over the period; however, it is more time consuming to track the price changes.

Knowledge Check Answers (Page 232)

1. a. Purchasing: Choosing a credible supplier; carefully defining each product's intended use.
   b. Receiving: Receiving deliveries when it is convenient for the operation; ordering items as needed to maintain quality; rejecting food that does not meet the operation's criteria or was not actually ordered.
   c. Storing: Storing all accepted goods promptly and appropriately; monitoring perishable items regularly; inspecting storage facilities regularly.
2. A food production chart can ensure product quality, avoid product shortages, and minimize waste, spoilage, theft, energy costs, and administrative costs.
3. Latest purchase price is a method for calculating closing inventory by multiplying the number of units of each item by the most recent price paid for the item. Actual purchase price is a method of calculating closing inventory by multiplying the number of units of each item by the price actually paid for each unit.

Homework Activity: Science

The Purpose of Repurposing

Select three raw or cooked foods—a protein, a starch, and a vegetable—that might be left over from an operation's service period. For each, identify appropriate ways that they can be repurposed.

What are some food safety issues that could be involved with these repurposed foods? How can they be avoided?

Write a one-page report discussing your ideas for repurposing the selected foods and the relevant food safety issues.

PAGE 234 CASE STUDY FOLLOW-UP ANSWERS: "MANAGING COSTS"

1. Students will need to research these dishes to determine the ingredients used to make them, as well as the typical costs for each ingredient. The format should follow the example given on page 221.
2. Student answers will vary but should be well defended. The menu is the primary sales tool in most restaurant and foodservice operations. Ideally, the menu will reflect the overall cost of running the operation. That means the price of an item should include all of the costs needed to purchase, prepare, and serve it, along with other costs such as labor, rent, utilities, etc. In short, the success of the operation hinges on proper menu pricing. Students can refer to food cost percentage, standard portion costs, etc.

PAGES 234–235 CHAPTER ACTIVITIES ANSWERS

- **Cost-Control Poster:** Students should include all steps of the food flow process in their posters and clearly identify cost-controlling measure at each.
- **Can Cutting:** See the student Activity Guide for a worksheet to assist students in this task. This is a method to check that the product you have chosen to purchase is continuing to meet the quality standards for the operation, and that the yield of the item is stable. A good example is potato chips, where the bag often looks larger than the contents. A yield of the product is listed on the bag, and it is a best practice to test and challenge that the contents match what is listed. The concept with ice cream is to test the quality standards and yield, so the weights will vary. Students may observe quality differences related to the ingredients.
- **Purchasing, Receiving, and Storing:** Students may suggest a variety of answers so long as they are properly defended, accurately described, and correctly represented on the flow chart.
- **Converting Marinara Sauce:** Students should perform the mathematics and measuring operations accurately to demonstrate that they understand this process.

  12 lb = 192 oz

  2 tbsp = 1 oz

  2 tbsp = 1 oz

  1 tbsp = 0.5 oz

  4 oz

  4 oz

  8 oz

  2 tbsp = 1 oz

  1 tbsp = 0.5 oz

  Total ounces produced by recipe = 212

  212 ÷ 4 = 53

  The recipe produces 53 portions of 4 ounces each.

  For part two, note that 1 gallon of olive oil weighs approximately 121 ounces.
- **Technology and Productivity:** Students will seek sources outside of the text to answer this question, but they should limit their searches to technology items that specifically control costs in the foodservice industry.
- **Taking Inventory of Your Home:** Student answers will vary widely but should include all the information requested by the activity. This information might most easily be recorded in a spreadsheet.

PAGES 236–237 EXAM PREP ANSWERS

1. D (p. 220)
2. B (p. 220)
3. B (p. 225)
4. A (p. 221)
5. A (p. 226)
6. A (p. 223)
7. C (p. 219)
8. D (p. 221)
9. B (p. 219)
10. A (p. 232)

Chapter 10
Teacher's Companion

CHAPTER OVERVIEW

This chapter addresses labor costs and how these can be scheduled and controlled.

CHAPTER OBJECTIVES

10.1 Explain the importance of standard labor costs to a business's success.

10.2 List factors that affect labor costs.

10.3 Describe the relationship between sales volume and labor costs.

10.4 Explain the difference between a master schedule and a crew schedule.

ADVANCE PREPARATION

Review	• Chapter 10, pages 238–249 • Unit case study, "Managing Costs," pages 192–193
Contact	• A guest speaker from a local restaurant who can discuss how his or her operation controls costs • School foodservice director
Prepare	• Sample master schedule • Sample crew schedule

CHAPTER BREAKDOWN

PAGE 240 **INTRODUCTION**

Discuss

- In what ways can inappropriate employee behavior cost the employer money?
- Foodservice managers typically have less control over their labor cost and their employees than over other aspects of the business.

PAGES 240–242 BUDGETING LABOR COSTS

Reinforce and Review

- Labor is a semivariable, controllable cost. Labor costs are tied to sales, but not directly.
- Operations are staffed based on their needs. They must have enough staff working to meet customer needs in an efficient and appropriate manner, but having unnecessary staff members working is inefficient. Inefficient and inconsistent staffing impedes staff morale. Staff members are likely to feel mistreated and operations are more likely to experience turnover and poor performance.
- When labor cost falls below the standard, quality of food or service might suffer; when labor cost exceeds the standard, profit might suffer.
- Actual labor cost is rarely the same as ideal labor cost. Ideal labor cost is what management predicts, whereas actual labor cost is the true cost of the workforce.
- Four main factors that contribute to labor cost are business volume, employee turnover, quality standards, and operational standards.
- Video: Factors Contributing to Labor Costs. For a video on the four main factors contributing to labor costs, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- It's often said that people are the most important resources a company has. In what ways do students agree and disagree with this statement? Why?
- How can managers staff appropriately while maintaining a harmonious workplace, even when times are hard and sales are down?
- How do managers determine the ideal labor cost for a new operation? What factors might they use in their predictions?
- What are some ways that managers can work with employees to reduce labor costs without creating a negative work environment?
- Why might a business owner expect more hours of work from salaried staff than from hourly staff? In what ways can this be a positive or a negative development?

Vocabulary Review

- **Semivariable cost:** A cost made up of both fixed (unchanging) and variable (changing) cost elements. Labor is an example of a semivariable cost.
- **Business volume:** The amount of sales an operation is doing for a given time period.
- **Employee turnover:** The number of employees hired to fill one position in a year's time.
- **Quality standards:** The specifications of the operation with regard to products and service.

- **Operational standards:** The specifications of an operation with regard to products. If an employee does not prepare a product that meets the operation's standards, the employee must redo that item, which costs money—not only in terms of wasted product that increases food costs, but also in terms of productivity and increasing labor costs.
- **Variable cost:** A cost that will change based on the amount of sales at the restaurant or foodservice operation.

Customized Instruction

Learning disabled	Create a video that shows the four main items that affect labor cost, listed below. • Business volume • Employee turnover • Quality standards • Operational standards Teacher note: Seek alternate resources to "personalize" the key terms. For example: *https://www.stlouisfed.org/~/media/Education/Curriculum/pdf/Its-Your-Paycheck-Lesson-4.pdf* For students that do have a job, encourage using their paycheck to complete the activity.
Academically gifted	Interview a manager or owner in the foodservice and restaurant field about employee turnover. The Did You Know sidebar states that the national average for turnover is 70 percent in foodservice operations, and the average cost for a "lost" employee is $3,000. Inquire during the interview how many individuals are lost in turnover and what the cost is to the operation. Write a report with your findings, comparing the results with the national average cost of turnover.
ELL	Using the key terms from this section, create a graphic organizer to convert the word definitions into images or videos, to further explain the key terms. Provide the definitions, and allow student to build definitions with further understanding. • **Semivariable cost:** A cost made up of both fixed (unchanging) and variable (changing) cost elements. Labor is an example of a semivariable cost. • **Business volume:** The amount of sales an operation is doing for a given time period. • **Employee turnover:** The number of employees hired to fill one position in a year's time. • **Quality standards:** The specifications of the operation with regard to products and service. • **Operational standards:** The specifications of an operation with regard to products. If an employee does not prepare a product that meets the operation's standards, the employee must redo that item, which costs money—not only in terms of wasted product that increases food costs, but also in terms of productivity and increasing labor costs. • **Variable cost:** A cost that will change based on the amount of sales at the restaurant or foodservice operation.

Homework Activity: Literacy

Hard Times, Hard Talks

You manage a local restaurant that is undergoing tough times. Although your operation has consistently provided excellent service and food, the city has a high unemployment rate, so sales volume has slowed dramatically. To avoid laying employees off, you have decided to reduce everyone's hours so as to share the burden as evenly as possible.

You need to explain to your staff why you will have to reduce their working hours, due to the low volume. What is the best way of doing this so that staff morale suffers as little as possible and service quality remains high? Create an action plan for talking with your employees about the upcoming changes.

Homework Activity: Writing

Standards and Practices

Some restaurateurs claim that the secret to a successful operation is to have 30 percent food cost, 30 percent labor cost, 30 percent operational and administrative costs, and a 10 percent profit. Do you think that these standards are achievable and/or desirable for all operations? Why or why not?

Write a brief report defending your position.

Homework Activity: Writing

Turnover Tactics

Turnover can be very expensive to an operation. Hiring and effectively training new employees is often costly. What can an operation do to keep its best employees, maintaining a loyal, enthusiastic, and well-trained staff?

Write an essay on how you would maintain a positive work establishment in your operation, keeping a high-quality staff.

PAGES 243–246 SCHEDULING

Reinforce and Review

- Scheduling depends both on how much revenue an operation is bringing in and how much revenue the same operation is expected to bring in.
- Scheduling conflicts can often be avoided or mitigated by having clear policies, making schedules far in advance, and maintaining open communication between management and staff.
- Contingency plans help operations remain efficient and productive even during adverse conditions.

- A good contingency plan should include cross-training employees, identifying shift leaders, and having on-call employees.
- Properly staffed operations generally result in lower labor costs and increased productivity.
- Essential Skills: How to Develop a Contingency Plan lists the components involved in developing a contingency plan.

Discuss

- How can a properly constructed master schedule help to control labor costs and contribute to a positive work environment?
- What are some examples of situations that might require contingency plans?

Vocabulary Review

- **Master schedule:** A template, usually a spreadsheet, showing the number of people needed in each position to run the restaurant or foodservice operation for a given time period.
- **Crew schedule:** A chart that shows employees' names and the days and times they are to work.

Customized Instruction

Learning disabled	The primary rules for scheduling employees are: 1. As projected sales increase, the number of employees needed increases. 2. As projected sales decrease, the number of employees needed decreases. Using the rules for scheduling employees, list three examples of each rule. For example, an ice cream shop may become very busy during warm summer months but be less busy during winter months. How do you think this relates to scheduling? Consider things like seasonal businesses, but also consider special events, holidays, or other items that can increase or decrease business.
Academically gifted	What challenges does a manager face in keeping on budget for labor but also keeping employees happy? For example, an employee may stay on the clock an extra 15 minutes each day. However, the cost to the operation is overtime paid to the employee. Extra money may make one employee happy, but that situation can cause the team to miss the labor budget overall. Think through both sides of the argument, and present the sides in a presentation to the class.
ELL	Create a graphic organizer with images or videos to define the differences and similarities between a master schedule and crew schedule. Alternative: If possible, allow working students to find examples in their own workplace, like filming an interview with their boss on making a master and crew schedule and all of the elements involved when building such items.

Homework Activity: Writing

Pros and Cons

During periods in which business volume is slow, managers are often faced with a difficult decision: Should they lay off employees, which will cause a few to suffer but keep the rest fully employed; or should they simply reduce everyone's hours, so everyone suffers a little but everyone keeps his or her job?

As an employee, which situation would you rather face, and why? Consider all the potential ramifications of either path. For instance, would you rather be laid off so you can have the free time to look for another job, or would you rather work fewer hours at your original job?

Write an essay stating and defending your position.

Knowledge Check Answers (Page 246)

1. If payroll costs fall below the budgeted standard, the quality of food or service could suffer, resulting in lost sales. If payroll costs exceed the standard, the profit suffers. (p. 241)
2. The four factors that influence labor cost are business volume, employee turnover, quality standards, and operational standards. (p. 242)
3. Labor costs can go up and down as sales go up and down, but not necessarily in direct proportion. (p. 242)
4. Strategies that can be included in a contingency plan include making a telephone tree, cross-training employees, creating and testing an emergency plan, identifying and training leaders among different shifts or kitchens, developing an employee handbook to codify emergency and contingency plans, and communicating with staff to ensure everyone understands his or her role when problems arise. (p. 245)

PAGE 247 CASE STUDY FOLLOW-UP ANSWERS: "MANAGING COSTS"

1. Students can answer this in a variety of ways, as long as they present clear and relevant ideas for controlling labor costs. For example, Judy and Mike want to be sure they have the best-quality staff and the appropriate number of them working at any given time, thereby helping to control labor costs.
2. Students should explain that the four factors that influence labor cost are business volume, employee turnover, quality standards, and operational standards.

   Business volume: When business volume increases, the fixed elements of labor costs decrease by a percentage. The variable elements of labor cost go up and down in direct relation to sales volume (an increase in sales means more hours needed; a decrease in sales means fewer hours needed).

   Employee turnover: The higher the turnover rate of a given operation, the higher the labor costs. This results primarily from the training costs involved in bringing on new staff.

   Quality standards: The type of operation and the type of menu it has determines the number of staff and the skill level required of that staff to meet the operation's needs.

   Operational standards: If an employee does not prepare a product that meets the operation's standards, the employee must redo that item. This costs money, not only in terms of wasted product that increases food cost, but also in terms of productivity and increasing labor cost.

PAGES 247–248 CHAPTER ACTIVITIES ANSWERS

- **Turning around Turnover:** Students can answer in a variety of ways so long as they effectively explain the effect of turnover on labor cost and how it can be controlled. For example, a high turnover rate affects an operation's bottom line. To reduce employee turnover, hire the right employees, fire employees who do not fit, pay employees the fair going wage, encourage staff communication and express gratitude, recognize employees' hard work, make employee happiness a priority, and show respect.
- **The Science of Management:** Students will need to contact a local restaurant manager and set up an interview. Students should go to the interview with a list of interview questions. Student should take notes and be attentive to the interviewee. After the interview, students should write a one-page paper on their interview results.
- **Scheduling and Payroll:**

Position	Total Hours	Wage	Total Wages	Total Wages with the Extra Hour
Server	61	$15	$915	$60 + $915 = $975
Grill	17	$20	$340	
Fry	16	$20	$320	
Dish washer	17	$10	$170	
Bar	17	$13	$221	

The total wages for the day are $1,966. With the extra four servers staying an extra hour, the total wages for the day are $2,026. Since the operation was seeing an increased volume, having the servers stay an extra hour most likely did not impact the profits.

- **Creating a Crew Schedule:** Students can use the sample crew schedule on page 244 or any other format they find appropriate, so long as they schedule staff to meet the restaurant's needs.
- **Keep Those Costs under Control:**

Labor Cost Percentage Calculation								
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Total hours worked	62	48	56	48	53	49	56	372
Total sales	$2,000	$1,250	$1,300	$1,500	$2,500	$2,700	$2,000	$13,250
Labor cost	$465	$360	$420	$360	$397.50	$367.50	$420	$2,890
Labor cost percentage	4.30%	3.47%	3.10%	4.17%	6.29%	7.35%	4.76%	4.58%

The café is keeping its labor cost percentage at a good level.

To increase labor cost percentage, assign more staff per shift. To decrease labor costs, assign fewer staff per shift.

It is important that the café have the right number of quality skilled staff on each shift or the quality of the customers' experience will be negatively affected.

- **Employee Policies:** Students should research two different restaurant or foodservice operations and accurately summarize their employee policies. Their rationales for supporting one over the other may vary as long as they adequately defend their positions.

PAGE 249 EXAM PREP ANSWERS

1. A (p. 244)
2. B (p. 244)
3. B (p. 243)
4. B (p. 242)
5. B (p. 240)
6. C (p. 240)
7. B (p. 243)
8. B (p. 244)
9. A (p. 242)
10. A (p. 241)

Chapter 11
Teacher's Companion

CHAPTER OVERVIEW

This chapter focuses on purchasing and inventory management as a means of controlling costs. Basic purchasing concepts, such as distribution, encourage students to consider the broad range of goods and services purchased in the restaurant and foodservice industry. Purchasing decisions are discussed, such as how an operation determines what it needs in order to provide a certain level of service. Caring for purchases—including receiving, storing, and inventory practices—is also covered.

CHAPTER OBJECTIVES

11.1 Outline the objectives of the purchasing function in a foodservice operation.

11.2 Explain the relationship between primary and intermediary sources and retailers.

11.3 Explain the differences between formal and informal buying and the formal bidding process.

11.4 List the types of goods and service that a foodservice operation might buy.

11.5 Describe the buyer's role in a foodservice operation, and explain the importance of ethical behavior to a buyer.

11.6 List the factors that help to determine an operation's quality standards.

11.7 Identify ways to communicate quality standards, and give examples of standards a foodservice operation might use.

11.8 Describe buyer considerations when conducting a make-or-buy analysis.

11.9 Outline the process for procuring products and services.

11.10 Explain what is included in a purchase order.

11.11 List factors that affect food prices.

11.12 List procedures for receiving deliveries.

11.13 List procedures for storing food and supplies.

11.14 Describe perpetual inventory and physical inventory systems.

ADVANCE PREPARATION

Review	• Chapter 11, pages 250–287 • Unit case study, "Managing Costs," pages 192–193
Contact	• A representative from a food distributor (contact your school foodservice director for suggestions, if necessary) • A purchaser with responsibilities for multiple foodservice outlets, which could also be your school foodservice director • National Food Service Management Institute at The University of Mississippi • The USDA • State National Restaurant Association • The Federal Trade Commission, with teacher resources available at: *https://www.admongo.gov/_pdf/curriculum/FTC-Lesson-Plans-Student-Worksheets.pdf* • Chicago Mercantile Exchange (CME group), for commodity and futures trading markets in things like agriculture, found at: *https://www.cmegroup.com/education/browse-all.html*
Prepare	• Purchasing orders • Receiving forms • Customized instruction listed below, including the use of images and videos for the various learning objectives. Pacing should be considered, as well as extra time for the more complex terms and concepts. Allow students to self-direct with research to create understanding, depending on the needs of your particular classroom. Regular checks for understanding with the instructional tool of your preference is suggested.

CHAPTER BREAKDOWN

PAGE 252 **INTRODUCTION**

Discuss

- How does an operation's chosen identity affect its purchasing decisions?
- The successful operation must fully understand its budget, identity, standards, storage capacity, and customers' wants and needs, among other things.
- An operation must also be able to develop and maintain strong supplier relationships.

PAGES 252–257 **THE PURCHASING FUNCTION**

Reinforce and Review

- The purchasing process is everything involved in buying products and services for an operation.
- The five parts of the purchasing process are determining what the operation wants and needs to buy, identifying quality standards, ordering products and services, receiving deliveries, and storing and issuing products.

- Buyers and managers usually work together to determine what should be ordered and in what quantities.
- Product specifications, or specs, are the standards for the quality of the products and services necessary to meet operational goals; suppliers use these specs to meet the operation's needs.
- Employees must check the quality, as well as the price and the amount, of all goods being received.
- Once received, products should be stored swiftly and appropriately to prevent food safety problems and spoilage.
- The first goal of purchasing is to make sure that the operation has enough product to sell.
- Some tools to help buyers purchase appropriate quantities include customer-count histories, popularity indexes, vendor delivery schedules, availability of items, and awareness of outside influences that can affect an operation.
- A customer-count history tracks how many customers have been served during specific time periods.
- The popularity of a particular menu item is a determining factor in how frequently its ingredients must be ordered.
- Every item an operation produces must meet its quality standards.
- Consistency is the key to drawing repeat business, and it often begins with consistently purchasing high-quality products.
- Specifications are simple to follow in some cases, but fresh food can pose challenges: Freshness, seasonality, and availability often change.
- Video: The Basic Procurement Steps. For a video on the five main elements of the procurement process, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Which of the five parts of the purchasing process is most important? Why?
- Human error can affect each stage of the purchasing process. Encourage students to give examples of how things can go wrong.
- Which of the four purchasing goals is most important to an operation's success? Why?
- What challenges might a buyer face when making purchasing decisions? How can relying on these goals help?
- How can a restaurant or foodservice operation improve its competitive position?
- In what cases might a purchaser choose to pay a higher price for an item from a particular supplier?
- What are some examples of products that have fluctuating prices?

Vocabulary Review

- **Specifications, or specs:** Detailed descriptions of all the characteristics needed to fill a purchase need.
- **Requisitions:** Formal requests for items to be ordered or used from storage.
- **Requisition forms:** Forms filled out by an employee listing exactly what items are needed to take out of storage and use in production. After filling in the form, the employee gives the form to whoever is in charge of inventory.

- **Buyer:** Person who makes the purchases for an operation; usually a manager or owner.
- **Franchise:** A legal business relationship in which an independent owner buys the right to use a company's name, products, and logo. Examples include Subway, McDonald's, and KFC.
- **Franchisees:** People who are granted the right to market a company's goods or services in a certain area—the owners of the individual franchise operations.
- **Kickbacks:** Money or other goods received by a person in exchange for purchasing from a specific vendor. Kickbacks are illegal.
- **Cash position:** The amount of funds available to an operation at any given time.
- **Competitive position:** Situation in which an operation controls costs and attracts customers while ensuring it pays a competitively low price for goods and services from vendors.

Customized Instruction

Learning disabled	Create a graphic organizer with images or videos to provide further understanding with the following definitions: • **Specifications, or specs:** Detailed descriptions of all the characteristics needed to fill a purchase need. • **Requisitions:** Formal requests for items to be ordered or used from storage. • **Requisition forms:** Forms filled out by an employee listing exactly what items are needed to take out of storage and use in production. After filling in the form, the employee gives the form to whoever is in charge of inventory. • **Buyer:** Person who makes the purchases for an operation; usually a manager or owner. • **Franchise:** A legal business relationship in which an independent owner buys the right to use a company's name, products, and logo. Examples include Subway, McDonald's, and KFC. • **Franchisees:** People who are granted the right to market a company's goods or services in a certain area—the owners of the individual franchise operations. • **Kickbacks:** Money or other goods received by a person in exchange for purchasing from a specific vendor. Kickbacks are illegal. • **Cash position:** The amount of funds available to an operation at any given time. • **Competitive position:** Situation in which an operation controls costs and attracts customers while ensuring it pays a competitively low price for goods and services from vendors.
Academically gifted	Research the profession of buyer in the foodservice industry. Write a report that includes roles and responsibilities, as well as information on the level of experience or education required to earn the job of buyer, the type of salary a buyer can make, and examples of buyers found in your research.

(continued)

ELL	Create a graphic organizer with images or videos to provide further understanding with the following definitions: • **Specifications, or specs:** Detailed descriptions of all the characteristics needed to fill a purchase need. • **Requisitions:** Formal requests for items to be ordered or used from storage. • **Requisition forms:** Forms filled out by an employee listing exactly what items are needed to take out of storage and use in production. After filling in the form, the employee gives the form to whoever is in charge of inventory. • **Buyer:** Person who makes the purchases for an operation; usually a manager or owner. • **Franchise:** A legal business relationship in which an independent owner buys the right to use a company's name, products, and logo. Examples include Subway, McDonald's, and KFC. • **Franchisees:** People who are granted the right to market a company's goods or services in a certain area—the owners of the individual franchise operations. • **Kickbacks:** Money or other goods received by a person in exchange for purchasing from a specific vendor. Kickbacks are illegal. • **Cash position:** The amount of funds available to an operation at any given time. • **Competitive position:** Situation in which an operation controls costs and attracts customers while ensuring it pays a competitively low price for goods and services from vendors.

Homework Activity: Literacy

Special Specs

Develop a spec sheet for something you purchase regularly, such as a cup of coffee or school supplies. What information do you need to provide to make sure that if someone else were buying the product for you, you would receive the correct item? Make out a spec sheet that presents this information in a clear, logical fashion.

Homework Activity: Literacy

Competitive Advantage

What attracts you to a particular restaurant or store? Is it the service, the aromas, the products, the prices, or something else? The elements that draw you to Operation A rather than Operation B are Operation A's competitive advantages. Explain how these advantages can affect all aspects of Operation A—its profits, its sales, its identity, and so on—in a one-page report.

Homework Activity: Writing

The Right Stuff

Describe a situation in which you felt pressure to do what you knew was wrong. What did you do? Were you able to maintain your integrity? What was the outcome? Discuss the situation in a one-page report.

PAGES 258–263 **THE PURCHASING PROCESS**

Reinforce and Review

- Distribution refers to the journey products make as they move from where they were grown or made to their final destination in a restaurant or foodservice operation.
- The three main layers in the channel of distribution are the primary source, the intermediary source, and the retailer.
- Primary sources include farmers, ranchers, distillers, and manufacturers.
- Intermediary sources include wholesalers, distributors, and suppliers; they are often known as middlemen because they do not alter the products in any way.
- Retailers include restaurants, school cafeterias, and caterers; all restaurants are retail businesses.
- Most restaurant and foodservice operations deal directly with primary sources only when buying new equipment or locally grown specialty foods.
- The buyer for an independent or single-unit operation might be its owner or manager; in larger operations, purchasing responsibilities might be overseen by a purchasing vice president, agent, or director.
- The head of the purchasing chain might perform all purchasing tasks or might review purchasing decisions and assist with purchasing for multiple units or franchises.
- Buyers use either formal or informal purchasing methods to obtain goods and services.
- Essential Skills: Vendor Shopping discusses the three main steps in vendor shopping.

Discuss

- What are some food safety concerns that could arise during the distribution flow? How can they be prevented?
- Name other examples of foodservice retailers, besides the ones listed in the text.
- Why do some operations use the formal purchasing method, whereas others use the informal method? How do operations determine which method is appropriate for their needs?
- How do bids differ from quotes?

Vocabulary Review

- **Channel of distribution:** The particular businesses that buy and sell a product as it makes its way from its original source to a retailer.
- **Primary sources:** Original sources where things are made. This group includes the farmers and ranchers who raise produce and livestock, as well as manufacturers (businesses that make products like kitchen equipment from raw materials) and distillers (businesses that produce alcoholic beverages from raw materials like grapes and grains).
- **Intermediary sources:** Various businesses, including wholesalers, distributors, and suppliers, that are sometimes referred to as middlemen because they do not actually alter products in any way but instead buy products from primary sources and sell them to their final destination, the retailer.
- **Retailers:** Operations that sell their products directly to the public. All restaurants are considered retailers.
- **Formal purchasing method:** Method in which buyers prepare purchase specifications for the items they want and then send those specs to several suppliers for bids. Sealed bids are then submitted to the company and are opened by the buyer publicly. Generally, a contract is then awarded to the lowest bidder.
- **Bids:** Specialized, written price lists created for the restaurant by a supplier.
- **Contracts:** Legal, binding business arrangements for the supply of goods or services at a fixed price.
- **Request for proposal, or RFP:** Term often used to describe the entire bidding process of creating specifications, offering them to the suppliers, receiving bids, and awarding a contract.
- **Informal purchasing method:** Process of purchasing goods and services without the steps and formality that come with a request for proposal (RFP). For example, when the owner of a small diner needs a new supplier, he or she simply asks for verbal price quotes from a variety of suppliers before making a decision.
- **Quote or daily bid:** Notice of a price that a supplier gives to a buyer during the purchasing process. These are often made over the phone, by email, or by fax, and are only good for the dates submitted.
- **Purchase order:** A legally binding written document that details exactly what the buyer is ordering from the vendor.
- **Time value:** The price retailers pay for the convenience of selecting the time of delivery from suppliers.
- **Form value:** The price savings created when a buyer purchases bulk quantities of food instead of individually portioned servings. For example, blocks of butter cost less than individual pats because less packaging and processing goes into making the block of butter.
- **Place value:** The price differences of a product depending on where it needs to be shipped and how far it needs to go.
- **Transportation value:** The cost of choosing a quick but expensive form of transport to get goods delivered versus a cheaper but slower option. For example, shipping seafood by air is much more expensive than by truck, but the increased price may be worth the added freshness of the product.
- **Service value:** Value of additional convenience services that a vendor provides to its customers. This could include customer services that make ordering easier or things that streamline kitchen prep. Frequency of delivery, or how often a supplier will deliver to an operation, is also a value-added service. These services often result in higher prices for an item, but the higher prices are often offset by reduced food-preparation costs.

- **Supply and demand:** Economic relationship in which a decrease in supply results in an increase in price, assuming the demand (number of buyers who want these goods) remains the same.
- **Commodity:** An economic good that is a product of agriculture or mining. Examples could include: corn, wheat, oil, sugar, soybeans, steel, and aluminum.
- **Commodity pricing risk:** The threat that an increase in the price of a commodity will increase the price of using that commodity to produce other goods. For example, when the price of corn increases, the cost of producing cornmeal increases.

Customized Instruction

Learning disabled	Create a graphic organizer with images or videos to provide further understanding with the following definitions: • **Channel of distribution:** The particular businesses that buy and sell a product as it makes its way from its original source to a retailer. • **Primary sources:** Original sources where things are made. This group includes the farmers and ranchers who raise produce and livestock, as well as manufacturers (businesses that make products like kitchen equipment from raw materials) and distillers (businesses that produce alcoholic beverages from raw materials like grapes and grains). • **Intermediary sources:** Various businesses, including wholesalers, distributors, and suppliers, that are sometimes referred to as middlemen because they do not actually alter products in any way but instead buy products from primary sources and sell them to their final destination, the retailer. • **Retailers:** Operations that sell their products directly to the public. All restaurants are considered retailers. • **Formal purchasing method:** Method in which buyers prepare purchase specifications for the items they want and then send those specs to several suppliers for bids. Sealed bids are then submitted to the company and are opened by the buyer publicly. Generally, a contract is then awarded to the lowest bidder. • **Bids:** Specialized, written price lists created for the restaurant by a supplier. • **Contracts:** Legal, binding business arrangements for the supply of goods or services at a fixed price. • **Request for proposal, or RFP:** Term often used to describe the entire bidding process of creating specifications, offering them to the suppliers, receiving bids, and awarding a contract.

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Learning disabled ***(cont)***	• **Informal purchasing method:** Process of purchasing goods and services without the steps and formality that come with a request for proposal (RFP). For example, when the owner of a small diner needs a new supplier, he or she simply asks for verbal price quotes from a variety of suppliers before making a decision. • **Quote or daily bid:** Notice of a price that a supplier gives to a buyer during the purchasing process. These are often made over the phone, by email, or by fax, and are only good for the dates submitted. • **Purchase order:** A legally binding written document that details exactly what the buyer is ordering from the vendor. • **Time value:** The price retailers pay for the convenience of selecting the time of delivery from suppliers. • **Form value:** The price savings created when a buyer purchases bulk quantities of food instead of individually portioned servings. For example, blocks of butter cost less than individual pats because less packaging and processing goes into making the block of butter. • **Place value:** The price differences of a product depending on where it needs to be shipped and how far it needs to go. • **Transportation value:** The cost of choosing a quick but expensive form of transport to get goods delivered versus a cheaper but slower option. For example, shipping seafood by air is much more expensive than by truck, but the increased price may be worth the added freshness of the product. • **Service value:** Value of additional convenience services that a vendor provides to its customers. This could include customer services that make ordering easier or things that streamline kitchen prep. Frequency of delivery, or how often a supplier will deliver to an operation, is also a value-added service. These services often result in higher prices for an item, but the higher prices are often offset by reduced food-preparation costs. • **Supply and demand:** Economic relationship in which a decrease in supply results in an increase in price, assuming the demand (number of buyers who want these goods) remains the same. • **Commodity:** An economic good that is a product of agriculture or mining. Examples could include: corn, wheat, oil, sugar, soybeans, steel, and aluminum. • **Commodity pricing risk:** The threat that an increase in the price of a commodity will increase the price of using that commodity to produce other goods. For example, when the price of corn increases, the cost of producing cornmeal increases.

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Academically gifted	What is future trading? Research the market that trades on the future crop production, at the Chicago Mercantile Exchange. What factors control the market? How are commodities traded? What are the commodities that are traded? Write a report with your findings. Teacher note: Another resource may prove to be helpful, like the following website: *http://futuresfundamentals.cmegroup.com*.
ELL	Create a graphic organizer with images or videos to provide further understanding and go with the following definitions: • **Channel of distribution:** The particular businesses that buy and sell a product as it makes its way from its original source to a retailer. • **Primary sources:** Original sources where things are made. This group includes the farmers and ranchers who raise produce and livestock, as well as manufacturers (businesses that make products like kitchen equipment from raw materials) and distillers (businesses that produce alcoholic beverages from raw materials like grapes and grains). • **Intermediary sources:** Various businesses, including wholesalers, distributors, and suppliers, that are sometimes referred to as middlemen because they do not actually alter products in any way but instead buy products from primary sources and sell them to their final destination, the retailer. • **Retailers:** Operations that sell their products directly to the public. All restaurants are considered retailers. • **Formal purchasing method:** Method in which buyers prepare purchase specifications for the items they want and then send those specs to several suppliers for bids. Sealed bids are then submitted to the company and are opened by the buyer publicly. Generally, a contract is then awarded to the lowest bidder. • **Bids:** Specialized, written price lists created for the restaurant by a supplier. • **Contracts:** Legal, binding business arrangements for the supply of goods or services at a fixed price. • **Request for proposal, or RFP:** Term often used to describe the entire bidding process of creating specifications, offering them to the suppliers, receiving bids, and awarding a contract. • **Informal purchasing method:** Process of purchasing goods and services without the steps and formality that come with a request for proposal (RFP). For example, when the owner of a small diner needs a new supplier, he or she simply asks for verbal price quotes from a variety of suppliers before making a decision. • **Quote or daily bid:** Notice of a price that a supplier gives to a buyer during the purchasing process. These are often made over the phone, by email, or by fax, and are only good for the dates submitted.

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ELL *(cont)*	• **Purchase order:** A legally binding written document that details exactly what the buyer is ordering from the vendor. • **Time value:** The price retailers pay for the convenience of selecting the time of delivery from suppliers. • **Form value:** The price savings created when a buyer purchases bulk quantities of food instead of individually portioned servings. For example, blocks of butter cost less than individual pats because less packaging and processing goes into making the block of butter. • **Place value:** The price differences of a product depending on where it needs to be shipped and how far it needs to go. • **Transportation value:** The cost of choosing a quick but expensive form of transport to get goods delivered versus a cheaper but slower option. For example, shipping seafood by air is much more expensive than by truck, but the increased price may be worth the added freshness of the product. • **Service value:** Value of additional convenience services that a vendor provides to its customers. This could include customer services that make ordering easier or things that streamline kitchen prep. Frequency of delivery, or how often a supplier will deliver to an operation, is also a value-added service. These services often result in higher prices for an item, but the higher prices are often offset by reduced food-preparation costs. • **Supply and demand:** Economic relationship in which a decrease in supply results in an increase in price, assuming the demand (number of buyers who want these goods) remains the same. • **Commodity:** An economic good that is a product of agriculture or mining. Examples could include: corn, wheat, oil, sugar, soybeans, steel, and aluminum. • **Commodity pricing risk:** The threat that an increase in the price of a commodity will increase the price of using that commodity to produce other goods. For example, when the price of corn increases, the cost of producing cornmeal increases.

Knowledge Check Answers (Page 263)

1. The four major goals of purchasing are:
   - Maintain the right supply of products and services, ensuring the operation has enough product to sell.
   - Maintain the quality standards of the operation; every item an operation produces must meet the operation's standards for quality.
   - Minimize the amount of money the operation spends; weight the value of a potential purchase against the operation's cash position.
   - Stay competitive with similar operations; to stay competitive an operation must shop around, get the lowest possible EP or AS price, and obtain total utilization from products purchased. (pp. 254–257)

2. Primary sources include farmers, ranchers, manufacturers, and distillers. Intermediary sources include wholesalers, suppliers, and distributors. Retail sources include restaurants, school cafeterias, and caterers. (p. 258)
3. With formal buying, buyers prepare purchase specifications for the items they want. In informal buying, managers or owners request verbal price quotes from a variety of suppliers. (p. 259)
4. The major categories of purchases are:
   - Food and beverages (e.g., poultry and soda)
   - Nonfood items (e.g., linens and paper goods)
   - Smallware and equipment (e.g., silverware and food processors)
   - Technology (e.g., point-of-sale systems and computers)
   - Furniture, fixtures, and equipment (e.g., lighting fixtures, refrigeration, tables)
   - Business supplies and services (e.g., office supplies and equipment)
   - Support services (e.g., pest control and valet services)
   - Maintenance services (e.g., cleaning services and groundskeeping)
   - Utilities (e.g., gas and electricity) (pp. 255–256)
5. Student responses will vary, but they must explain both a potential situation and how it could be avoided. One example might be a buyer who requests kickbacks from vendors. (p. 254)
6. Time value, form value, transportation value, place value, and service value. (p. 261)

Homework Activity: Writing

Eggs Not-So-Easy

Your operation always serves eggs from nearby Albina Farms, which has such a sterling reputation that you list "Albina Farms eggs" on your menu. However, your purchaser has forgotten to specify "Albina Farms eggs," and eggs from another source were mistakenly purchased, received, stored, and used.

As the owner, what is your obligation to the guests? Do you exchange eggs? Do you change your menu? Do you ask your servers to explain that the operation is temporarily substituting eggs from another source? What other options might you have?

In a one-page paper, explain how you would handle this situation and what you would do to prevent a similar occurrence in the future.

Homework Activity: Writing

Value

What constitutes a "good value" to you? Why? How do you determine what is and is not a good value? Why do some people find certain goods or services to be more valuable than other people do?

Discuss your responses to these questions in a brief essay.

Homework Activity: Math

Caesar Dressing

Convert the recipe for Caesar dressing on page 285 to make 1-quart, 1-gallon, and 2½-gallon batches. What is the recipe cost for each?

Write a brief report discussing how labor and equipment needs might be affected by the increased production and how this could increase costs.

Homework Activity: Science

Food Safety around the World

Select another country and research its food safety policies. How do they differ from regulations in your community? Why might this be the case?

Homework Activity: Math

Make-or-Buy Analyses

Select a recipe from this textbook and determine its cost, based on prices at a local grocer. How much does it cost to purchase the same amount of a similar item from a retail establishment, such as a deli or takeout restaurant? Which is financially a better deal?

Describe your findings in a brief report.

Homework Activity: Literacy

Purchasing Power

Write a purchase order for some good, using either an imaginary or an actual supplier. Be sure to include all the necessary information, using Figure 11.6 for assistance.

PAGES 263–265 **DETERMINING QUALITY STANDARDS**

Reinforce and Review

- The major elements of foodservice purchasing decisions are quality standards, product specifications, and the ordering process.
- In terms of purchasing, "quality" refers to the value or worth that customers place on a product or service.
- Establishing quality standard specifications helps an operation maintain the consistency that its guests expect.

- Successful operations determine the quality standards for every item that they purchase and use.
- Some factors that should be considered when determining an operation's quality standards include the item's intended use, the menu, and customers' wants and needs.
- Knowing how an item will be prepared and served is the most influential factor in determining quality standards.
- Operations with different concepts have different equipment—and therefore different purchasing needs—in their kitchens.
- If an operation offers items that require extensive preparation, the operation will need highly skilled employees, so labor costs will increase; alternatively, the operation can save on labor by employing less skilled workers and relying on convenience products, but these are more expensive and will increase food costs.
- Operations in highly competitive markets might need to include cost limits in their quality standards; although prices for goods may fluctuate, restaurant menu prices must remain fairly consistent.
- Drastic changes in an item's price can cut into the operation's profit and make budgets difficult to project.
- Smart operations respond to their customers' needs and wants by providing goods and services that meet those needs and produce a profit.

Discuss

- Encourage students to explain some purchasing decisions they face or have faced in their own lives. What information is helpful in making these decisions?
- Why are employee skill levels a factor in establishing quality standards?
- The "best product available" and the "most appropriate product" are both important purchasing concepts. How do they differ? How might they overlap?
- How is an item's intended use related to the concept of total utilization?
- As an owner, under what circumstances would you choose to have an operation that employs low-skilled employees and relies on easy-to-prepare convenience items? Under what circumstances would you choose to have highly skilled employees and rely on raw products?
- Why do some foodservice goods experience significant price fluctuations? Give some examples.
- What are some restaurant and foodservice trends? How do they affect consumer demands?
- When dealing with seasonal produce that may become more expensive or lower in quality at certain times of the year, is it better to keep the items on the menu but change their quality standards, or to remove the items from the menu altogether? Under what circumstances might either solution be correct?
- What are some reasons that operations often have relatively limited storage space?

Customized Instruction

Learning disabled	Create a graphic organizer with images or videos to provide further understanding, and include some of the factors that need to be taken into account when figuring out an operation's quality standards: • The item's intended use • The operation's concept and goals • The menu • Employee skill level • Budgetary constraints • Equipment constraints • Guests' wants and needs • Seasonal availability • Storage capacity
Academically gifted	Work with the school foodservice director to develop a new product that fits the guidelines and constraints of the operation, but also serves as a product that would be popular in the teen lunch market. Consider all the quality standard components while working with the director. Write a product specification and report detailing your findings.
ELL	What do quality standards look like? Perform research and find examples of images or video clips for the following items that help to plan an operation's quality standards: • The item's intended use • The operation's concept and goals • The menu • Employee skill level • Budgetary constraints • Equipment constraints • Guests' wants and needs • Seasonal availability • Storage capacity Organize your research in a graphic organizer or poster.

Homework Activity: Science

Home Storage

Evaluate your household refrigerator, based on the guidelines for professionally maintained refrigerated storage. For instance, at what temperature is it kept? Are the shelves overloaded, or can cool air circulate freely? Are open shelves used? How might these conditions affect the quality of the food stored there? Discuss your answers in a brief report.

PAGES 265–267 **WRITING PRODUCT SPECIFICATIONS**

Reinforce and Review

- Buyers must be very familiar with the operation's quality standards and product specifications when speaking with suppliers or purchasing goods and services.

- Managers and receiving employees must be trained to make sure that suppliers have followed product specifications, so that the operation's quality standards are met.
- Well-written specifications prevent purchasers from obtaining low-quality or wrong items.
- Sometimes a buyer must make substitutions to obtain quality products at an appropriate price, but customers should not suffer because of these decisions.
- Using a product code number, which relates to particular quality standards and name brands, can help both suppliers and purchasers ensure that the right product is being provided.

Discuss

- How can an operation write a comprehensive product specification without being too rigid?
- What role does employee training play in the purchasing and receiving process?

Customized Instruction

Learning disabled	Choose a specific product that you use in your life, and explain the product specs. This item can be a particular shampoo, perfume or cologne, or any nonfood item that you have developed a special preference for. Why do you have a preference for this item? Include an explanation with your specs.
Academically gifted	Using an approved food supplier website or ordering system, allow students to search for a general item, like chicken, milk, or beef. A large volume of items will come up in the search, and students will be able to see how product specs can make ordering a simpler process. Direct students to choose five different products to compare and contrast in a report, detailing the various specs' strengths and weaknesses. Students should present their findings to the class as a "teach-back."
ELL	Allow students to perform research on a nonfood item, such as a particular car model, electronic device, or other suitable item that has a specific specification that defines that product. Once one spec is chosen, allow students to compare and contrast the nonfood spec with the details in the textbook about food specs.

PAGES 268–270 **DETERMINING WHAT AND WHEN TO ORDER**

Reinforce and Review

- Before placing orders, purchasers must determine what items will be purchased or made in-house by conducting a make-or-buy analysis.
- Make-or-buy analyses help balance how much food a kitchen produces with the operation's quality standards.
- Purchasing ready-made products can be advantageous in terms of consistency, reducing prep time and labor costs, and reducing or eliminating certain pieces of equipment or storage space.
- Ready-made products are typically more expensive than raw goods; moreover, many operations pride themselves on their house-made recipes and prefer to serve fresh foods.

- To decide whether to make or buy an item, a buyer must first determine the total cost of making the item in-house and then compare this to the cost of purchasing the item ready-made.
- Production sheets not only provide an accurate snapshot of predicted and actual production for a given day, but also enable buyers to see signs of both stock-outs and overproduction.
- Keeping accurate daily food cost sheets can help managers limit food waste.
- Daily food cost is determined by adding up the requisitions from the dry-storage area and the daily purchases.
- Daily food cost percentage is determined by dividing daily food cost by the daily sales figure.
- Significant changes in the daily food cost can help managers identify problems, such as overproduction, waste, or theft.
- Sales mix records help managers determine and track changes in an item's popularity.
- Over time, operations learn their customers' demands and can predict par stock levels so that they never run out of anything.
- To use the par stock approach to ordering, operations must agree to the supplier's ordering process and delivery schedule, determine a par stock level for each inventory item, and calculate what to order by subtracting the amount of an item in hand from its par stock level.
- Using either the par stock approach or an established reorder point can help operations maintain the proper level of inventory at all times.
- Purchase orders are legally binding documents and should be carefully planned.

Discuss

- Under what circumstances should products be made in-house or purchased ready-made? Why do many operations combine the two methods?
- Describe the relationship between production sheets and the food cost percentage.
- Is cost the primary factor in determining whether to make or buy a given product? What role does taste play? Can a great-tasting product be made inexpensively?
- Why do most restaurant and foodservice managers try to keep food costs at or below 33 percent?
- How can using the par stock approach to ordering, a reorder point, or both help control foodservice costs?

Vocabulary Review

- **Make-or-buy analysis:** Process used to decide if an operation should make an item from scratch or buy a ready-made version. This analysis helps to balance how much food a kitchen produces with the quality standards of the operation.
- **Production records:** Records used by buyers and managers to forecast purchasing needs; production records include production sheets, daily food cost sheets, and sales mix records.
- **Stock-outs:** Running out of a menu item.

- **Overproduction:** Making too much food.
- **Daily food cost sheets:** Ongoing records of daily and monthly food costs for an operation. Daily food cost is determined by adding up the requisitions from the storeroom and the daily purchases.
- **Sales mix records:** Records that track each item sold from the menu, which can be done on a daily, weekly, or monthly basis. This record shows which items sell well, called leaders, and ones that do not sell well, called losers. By recognizing leaders and losers, buyers can order more effectively.
- **Leaders:** Items that sell well.
- **Losers:** Items that do not sell well.
- **Par stock:** Ideal amount of inventory items that an operation should have at all times. Over time, operations learn their customers' demands and can predict these levels so that they never run out of anything.
- **Reorder point, or ROP:** A reorder point is the point at which the amount of stock of an item reaches a level that alerts an operation to make orders immediately. The reorder point can be used with the par stock figure to help maintain proper inventory when suppliers do not deliver regularly.

Customized Instruction

Learning disabled	Create a graphic organizer with images or videos to provide visual definitions for the following terms: • **Make-or-buy analysis:** Process used to decide if an operation should make an item from scratch or buy a ready-made version. This analysis helps to balance how much food a kitchen produces with the quality standards of the operation. • **Production records:** Records used by buyers and managers to forecast purchasing needs; production records include production sheets, daily food cost sheets, and sales mix records. • **Stock-outs:** Running out of a menu item. • **Overproduction:** Making too much food. • **Daily food cost sheets:** Ongoing records of daily and monthly food costs for an operation. Daily food cost is determined by adding up the requisitions from the storeroom and the daily purchases. • **Sales mix records:** Records that track each item sold from the menu, which can be done on a daily, weekly, or monthly basis. This record shows which items sell well, called leaders, and ones that do not sell well, called losers. By recognizing leaders and losers, buyers can order more effectively. • **Leaders:** Items that sell well. • **Losers:** Items that do not sell well.

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Learning disabled ***(cont)***	• **Par stock:** Ideal amount of inventory items that an operation should have at all times. Over time, operations learn their customers' demands and can predict these levels so that they never run out of anything. • **Reorder point, or ROP:** A reorder point is the point at which the amount of stock of an item reaches a level that alerts an operation to make orders immediately. The reorder point can be used with the par stock figure to help maintain proper inventory when suppliers do not deliver regularly.
Academically gifted	Create an ROP spreadsheet for the inventory items in the classroom to uphold certain par levels or to plan for regular production. Then, assemble a brief training program to present the new system to the class, identifying who is responsible for what actions, when, and where. Students may film a training video to present, or use the medium of choice that works in the classroom.
ELL	Create skits or short videos that show an action where the following terms are involved, as either the subject or a scenario where the object is highlighted in the interaction: • **Make-or-buy analysis:** Process used to decide if an operation should make an item from scratch or buy a ready-made version. This analysis helps to balance how much food a kitchen produces with the quality standards of the operation. • **Production records:** Records used by buyers and managers to forecast purchasing needs; production records include production sheets, daily food cost sheets, and sales mix records. • **Stock-outs:** Running out of a menu item. • **Overproduction:** Making too much food. • **Daily food cost sheets:** Ongoing records of daily and monthly food costs for an operation. Daily food cost is determined by adding up the requisitions from the storeroom and the daily purchases. • **Sales mix records:** Records that track each item sold from the menu, which can be done on a daily, weekly, or monthly basis. This record shows which items sell well, called leaders, and ones that do not sell well, called losers. By recognizing leaders and losers, buyers can order more effectively. • **Leaders:** Items that sell well. • **Losers:** Items that do not sell well. • **Par stock:** Ideal amount of inventory items that an operation should have at all times. Over time, operations learn their customers' demands and can predict these levels so that they never run out of anything. • **Reorder point, or ROP:** A reorder point is the point at which the amount of stock of an item reaches a level that alerts an operation to make orders immediately. The reorder point can be used with the par stock figure to help maintain proper inventory when suppliers do not deliver regularly.

Knowledge Check Answers (Page 270)

1. Product specifications are based on quality standards. (p. 263)
2. Quality standards include an item's intended use, the operation's concept and goals, the menu, employee skill level, budgetary constraints, equipment constraints, customers' wants and needs, seasonal availability, and storage capacity. (p. 263)
3. Ready-made products can be advantageous in terms of consistency, reducing prep time and labor costs, and reducing or eliminating certain pieces of equipment or storage space. Ready-made products are more expensive. (p. 268)
4. Three tools used in making purchasing decisions are production sheets, daily food cost sheets, and sales mix records. Production sheets provide predicted and actual sales information for each service period and can help identify stock-outs and overproduction. Daily food cost sheets record actual food costs, allowing for comparisons and helping to eliminate waste or theft. Sales mix records help determine and track the popularity of each menu item. (p. 269)

PAGES 271–277 **AFTER-PURCHASE PROCESSES**

Reinforce and Review

- The first step in establishing good receiving procedures is to make sure that only employees who have been trained in proper receiving do the job.
- Any savings generated by careful purchasing can be erased if an operation's receiving and storage practices are sloppy or inconsistent.
- Successful operations establish receiving procedures and strictly follow them before accepting any product.
- Written invoices should accompany all deliveries.
- When receiving items, staff members should use the original purchase order, the supplier's invoice, and the product specifications to ensure that only the correct items are received.
- Guidelines for good receiving include planning ahead, inspecting and storing each delivery before receiving the next, inspecting deliveries immediately, recording deliveries on receiving sheets, correcting all mistakes immediately, storing products as quickly as possible, and maintaining the receiving area.
- All deliveries must be checked thoroughly to ensure that the appropriate food arrives in the appropriate condition.
- Products that are damaged, at the wrong temperature, or of the wrong quality should be rejected immediately.
- Receivers have the right to refuse any deliveries that do not meet the operation's quality standards.
- To reject an item, set it aside, tell the delivery person exactly why the item is being refused, get a signed adjustment or credit memo from the delivery person, and log the incident on the supplier's invoice.
- Proper storage management requires good planning and begins with an understanding of what needs to go where.

- Health requirements for storing food items are very exact, and cleanliness is essential at all times.
- Perishable items can readily be damaged by bacteria, light, or air, and they are time-sensitive. As a result, they are typically purchased more frequently than nonperishable items.
- Ordering goods with a JIT goal requires the buyer to predict as accurately as possible the point at which a new delivery of each good will be required.
- To use the JIT format, buyers must keep very good records and make accurate predictions, so that operations almost run out of food instead of actually running out of food.
- Buyers generally purchase nonperishable items in large quantities and with less frequency than they do perishable foods.

Discuss

- What staff members should be trained to receive deliveries? Why?
- Why is it important to check the delivered goods against both the invoice and the original purchase order?
- Is it a good idea to provide a receiving area away from kitchen workspace, to limit dirt, infestation, and other concerns, or would that prevent the timely storing of food?
- Under what circumstances should deliveries be refused due to food safety issues?
- What are some storage limitations in the classroom kitchen? How might they affect purchasing decisions?
- What common techniques for preventing time-temperature abuse or cross-contamination are appropriate in the classroom kitchen?
- What tools can help purchasers use the JIT format most effectively?
- Why might some foods deteriorate in the freezer, especially if stored over a long period of time?
- What are the only safe ways to thaw frozen foods?
- What are some other steps that restaurant and foodservice operators can take to prevent pest infestation?

Vocabulary Review

- **Receiving:** The process of inspecting, accepting, and, in some cases, rejecting deliveries of goods and services.
- **Key drop delivery:** Practice that allows for the safe delivery of food and other products during hours when the establishment is closed, usually between midnight and 6 a.m.
- **Credit memo:** A written record for an item rejected during receiving that ensures the vendor will credit the operation for the rejected item.
- **Perishable products:** Food products sold or distributed in a form that will spoil or decay within a limited period of time. They can be damaged by bacteria, light, or air. Perishable products include meat, fish, poultry, dairy, eggs, produce, and alcoholic beverages.
- **JIT (just in time) format:** Preferable method of purchasing perishable products with the goal that they arrive just in time, when the previous stock of those products has almost run out.

- **Nonperishable products:** Items that, generally due to packaging or processing, do not readily support the growth of bacteria. They include processed and canned or bottled products and dried goods.
- **Refrigerated storage:** Storage areas that typically hold TCS food at 41°F (5°C) or lower.
- **Frozen storage:** Storage areas that hold frozen food at temperatures that will keep it frozen.
- **Dry storage:** Storage areas that hold dry and canned food.
- **Humidity:** The amount of water moisture in the air or in a contained space such as a refrigerator.
- **Staples:** Food items for which the demand is constant.
- **Vermin:** Small disease-carrying animals, such as lice, fleas, or mice, that are difficult to control.

Customized Instruction

Learning disabled	Create labels for the following definitions, and place the labels in the kitchen or classroom where the item is either physically located, or a place where the item might be found, like pests in an area that is easily accessible. • **Receiving:** The process of inspecting, accepting, and, in some cases, rejecting deliveries of goods and services. • **Key drop delivery:** Practice that allows for the safe delivery of food and other products during hours when the establishment is closed, usually between midnight and 6 a.m. • **Credit memo:** A written record for an item rejected during receiving that ensures the vendor will credit the operation for the rejected item. • **Perishable products:** Food products sold or distributed in a form that will spoil or decay within a limited period of time. They can be damaged by bacteria, light, or air. Perishable products include meat, fish, poultry, dairy, eggs, produce, and alcoholic beverages. • **JIT (just in time) format:** Preferable method of purchasing perishable products with the goal that they arrive just in time, when the previous stock of those products has almost run out. • **Nonperishable products:** Items that, generally due to packaging or processing, do not readily support the growth of bacteria. They include processed and canned or bottled products and dried goods. • **Refrigerated storage:** Storage areas that typically hold TCS food at 41°F (5°C) or lower. • **Frozen storage:** Storage areas that hold frozen food at temperatures that will keep it frozen. • **Dry storage:** Storage areas that hold dry and canned food.

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Learning disabled ***(cont)***	• **Humidity:** The amount of water moisture in the air or in a contained space such as a refrigerator. • **Staples:** Food items for which the demand is constant. • **Vermin:** Small disease-carrying animals, such as lice, fleas, or mice, that are difficult to control.
Academically gifted	How long do canned foods actually last? Develop a plan for an emergency situation that details how long preserved foods last and under which conditions canned foods are the most safe. Research the topic, and compile a report with your findings.
ELL	Create a graphic organizer with the key terms from the chapter by creating a series of action images or video clips that help with defining the item and the action connected to the item. For example, the freezer is the frozen storage, and the cold temperature keeps food safe, preventing foodborne illness. Show the cause and effect of each term, or a larger connection to purchasing or food safety.

Homework Activity: Science

Pest Prevention

Identify one pest that is associated with the restaurant and foodservice industry. Describe its habits, its habitats, and why it poses a threat to food safety.

Discuss your findings in a one-page report.

In-Class Activity: Literacy

Pilfer Problems

Discuss the relationship between pilfering and professionalism. Under what circumstances is it acceptable to pilfer? Why? Have the class discuss these issues.

PAGES 277–282 **ACCOUNTING FOR INVENTORY**

Reinforce and Review

- Ideally, a restaurant or foodservice operation will have on hand only those goods it needs to meet guest demands.
- Having too little inventory means guests might not receive the items they would like to have.
- Having too much inventory means that food could spoil before use and storage costs will increase.
- The two common methods for purchasing nonperishable food are the physical inventory method and the perpetual inventory method.

- A physical inventory is an actual count of all items in stock, whereas a perpetual inventory is an estimate of stock on hand.
- Formal issuing procedures record all items when they are removed from the dry-storage area for use in the kitchen.
- Formal issuing procedures both keep accurate inventory records and reduce pilfering.
- Pilfering is both a serious problem and a serious offense; it typically results in termination of employment and could end in conviction for theft.
- Using an inventory system helps a buyer calculate product usage, food cost, and losses.
- Tracking the amount of product used during a given period of time helps the buyer determine when and how much of an item to order.
- Calculating an item's usage requires knowing both the opening and closing inventories.
- Essential Skills: Formal Issuing Procedures lists the steps in formal issuing.

Discuss

- What are some ways a restaurant or foodservice operation can keep from having excessive inventory?
- How can having too little inventory increase an operation's costs?
- Why should all restaurant and foodservice operations, regardless of size or style, determine and follow good practices for inventory control?
- If a restaurant operates at a gross profit, does that mean that it is a success? Why or why not?
- Explain the importance of formal issuing procedures to the accurate calculation of potential losses.

Vocabulary Review

- **Physical inventory method:** Method where the entire stock of an operation is physically reviewed on a regular basis. From this review, the operation determines the reorder point for each inventory item.
- **Perpetual inventory method:** With this inventory method, employees record items when they are received and then when they are used up. This information is kept on receiving and issuing sheets or logs, or electronically on a combined form.
- **Issuing:** Refers to the official procedures employees use when taking an item out of the storeroom and putting it into production. Usually, kitchen employees fill out product requisition forms listing exactly what items they need, and then they give the forms to whoever is in charge of inventory.
- **Pilfering:** Another term for stealing; when employees illegally take inventory items for their personal use.
- **Gross profit:** Profit, or amount of money an operation makes, before other costs are deducted.
- **Inventory shrinkage:** The difference between the total cost of food and the cost of goods issued during the period.

Customized Instruction

Learning disabled	Create videos in the form of an advertisement or educational commercial on each of the following key terms from the section, explaining the virtues of each topic: • **Physical inventory method:** Method where the entire stock of an operation is physically reviewed on a regular basis. From this review, the operation determines the reorder point for each inventory item. • **Perpetual inventory method:** With this inventory method, employees record items when they are received and then when they are used up. This information is kept on receiving and issuing sheets or logs, or electronically on a combined form. • **Issuing:** Refers to the official procedures employees use when taking an item out of the storeroom and putting it into production. Usually, kitchen employees fill out product requisition forms listing exactly what items they need, and then they give the forms to whoever is in charge of inventory. • **Pilfering:** Another term for stealing; when employees illegally take inventory items for their personal use. • **Gross profit:** Profit, or amount of money an operation makes, before other costs are deducted. • **Inventory shrinkage:** The difference between the total cost of food and the cost of goods issued during the period.
Academically gifted	Write a report comparing and contrasting the physical inventory method with the perpetual method, discussing the pros and cons of each.
ELL	Create a graphic organizer that shows the action or how to use the following terms: • **Physical inventory method:** Method where the entire stock of an operation is physically reviewed on a regular basis. From this review, the operation determines the reorder point for each inventory item. • **Perpetual inventory method:** With this inventory method, employees record items when they are received and then when they are used up. This information is kept on receiving and issuing sheets or logs, or electronically on a combined form. • **Issuing:** Refers to the official procedures employees use when taking an item out of the storeroom and putting it into production. Usually, kitchen employees fill out product requisition forms listing exactly what items they need, and then they give the forms to whoever is in charge of inventory. • **Pilfering:** Another term for stealing; when employees illegally take inventory items for their personal use. • **Gross profit:** Profit, or amount of money an operation makes, before other costs are deducted. • **Inventory shrinkage:** The difference between the total cost of food and the cost of goods issued during the period.

Knowledge Check Answers (Page 282)

1. Receivers check invoices against purchasing orders to ensure that the quantity and cost of the purchased goods have not changed. (p. 271)
2. Perishable items are food products sold or distributed in a form that will spoil or decay within a limited period of time, so they typically must be stored under refrigeration or frozen. Nonperishable items are items that do not readily support bacterial growth, usually as a result of processing or packaging; they are typically stored in dry-storage areas. (pp. 274–277)
3. The physical inventory method counts actual items that the establishment possesses, whereas the perpetual inventory estimates the items that the establishment possesses. (p. 277)

PAGE 284 CASE STUDY FOLLOW-UP ANSWERS: "MANAGING COSTS"

1. Students may identify any of a number of methods to maintain the restaurant's ambiance, while managing costs. They can review cleaning supplies, bar supplies, and paper goods. They can also look at finding alternative suppliers for flowers and eliminating candles. They should select at least three methods. Students should refer to pages 252–257.
2. The four major goals of purchasing are maintaining the right supply of products and services, maintaining the quality standards of the operation, minimizing the amount of money the operation spends, and staying competitive with similar operations. Judy and Mike might be overlooking quality standards, product specifications, or the ordering process. An operation's purchasing decisions affect whether or not the operation will be successful or even viable.

PAGES 284–284 CHAPTER ACTIVITIES ANSWERS

- **So-So Supplier:** Student responses will vary. The important thing is that they provide clear and logical responses. They need to address specific dates on which the order was wrong, incomplete, or damaged. Students should also specify days on which the order was delayed and the impact that delay had on service.
- **The Science of Rejection:** Students should select a reason to reject a damaged food item and describe why it is valid, both in terms of food safety and physical changes to the product. Students can describe freezer burn, bulging canned goods, or sour milk. They should go online to research the science behind these occurrences.

- **Make or Buy Caesar Dressing?:** Students should accurately calculate the total cost of making the dressing, including labor cost. They should identify which product is financially a better deal as well as explain why they would choose one dressing over the other.

Jacqui's Famous Caesar Dressing (makes 1.5 quarts)			**Supplier's Caesar Dressing**
(House-made dressing)			**(Purchased from vendor at $32/gallon)**
Amount	**Ingredient**	**Total Cost**	
2 tablespoons	Pasteurized egg yolk	$1.00	
1 cup	Olive oil	$3.25	
3 cups	Canola oil	$4.00	
½ ounce	Garlic	$0.15	
2 each	Anchovies	$0.90	
1 teaspoon	Dijon mustard	$0.10	
½ each	Lemon	$0.12	
4 ounces	Parmesan cheese	$2.00	
To taste	Hot sauce	–	
To taste	Worcestershire sauce	–	
To taste	Black pepper	–	

- **To Do Fondue:** Students will need to do online research to complete this activity. Some nonfood items that a fondue restaurant will need are fondue pots, fondue forks, fondue fountains, hot plates, vents, fondue fuel, fondue plates, lazy Susans, electric fondue pots, and fondue stands.
- **Be a Buyer:** Students will need to do online research to find out what the requirements are of a produce buyer and who hires produce buyers.

  Produce buyers oversee the purchasing function for the produce department, suggest changes to inventory and pricing, negotiate with vendors for pricing and delivery, and monitor the quality of goods or services. Most companies require a bachelor's degree or five years' experience buying produce. Produce buyers typically make between $52,000 and $71,000 annually.
- **Finding Time in the Day:** Students should write one paragraph on chefs and one on managers, both identifying ways in which these individuals can make time to develop standards and write specifications. They should identify the best time and manner for each person to address this important task during their day.

PAGES 286–287 EXAM PREP ANSWERS

1. D (p. 258)
2. B (p. 259)
3. A (p. 256)
4. C (p. 254)
5. A (p. 263)
6. C (p. 252)
7. B (p. 268)
8. A (p. 269)
9. C (p. 260)
10. D (p. 271)

Chapter 12
Teacher's Companion

CHAPTER OVERVIEW

This chapter discusses the processes involved in hiring new employees, such as interviewing, onboarding, orientation, and training.

CHAPTER OBJECTIVES

12.1 Explain what is included in a job description and why this document is important to a business.

12.2 Explain a manager's responsibility for maintaining labor law knowledge.

12.3 Identify methods for ensuring a fair and consistent hiring process.

12.4 Identify discriminatory language and practices in the hiring process.

12.5 Describe the typical phases of onboarding, and explain its importance to a business.

12.6 Explain what employees can expect during orientation.

12.7 Identify the benefits of training.

12.8 Identify the key points of effective employee training.

12.9 Summarize and discuss effective cross-training, group training, and on-the-job training.

12.10 Describe the importance of performance appraisals and ongoing feedback.

ADVANCE PREPARATION

Review	• Chapter 12, pages 288–309 • Unit case study, "Managing Costs," pages 192–193
Contact	• Training director • Hiring manager • School or district human resources coordinator
Prepare	• Sample training manual • Orientation materials • U.S. Department of Labor website, *https://www.dol.gov*

CHAPTER BREAKDOWN

PAGE 290 INTRODUCTION

Discuss

- Encourage students to share any experiences they have had with job interviews. Do their descriptions have anything in common?
- Interviews are the best way for employers to get to know an applicant's background and experience.
- Managers must know and understand all applicable laws governing hiring practices to avoid liability.

PAGES 290–292 JOB DESCRIPTIONS

Reinforce and Review

- A job description includes the position title, the responsibilities of the person holding that position, any requirements the position might have, and a brief statement of the conditions under which the person holding the position is expected to work.
- The job description is a useful tool in recruiting and maintaining employees, since it clearly sets out the employer's expectations and the employee's responsibilities.
- Job descriptions define the scope of a job, as well as establish boundaries between positions.
- Positions covered by the FLSA are considered nonexempt. The law specifies the minimum wage and conditions under which overtime is paid.
- Positions not covered by the FLSA are considered exempt and are often salaried positions, whereas nonexempt positions are often paid hourly wages.

Discuss

- Each member of the class works each day at the job of being a student. What would a job description for a student look like? What would be some of the primary responsibilities? What are the working conditions?
- How can a job description be used as a communication tool? What does it say about the employer's expectations as well as about the employer's culture?

Vocabulary Review

- **Job description:** A document that defines the work done by a particular position in the business.
- **Fair Labor Standards Act (FLSA):** A federal law that establishes legal standards for full-time and part-time employees, including minimum wage, overtime pay, and youth labor laws.
- **Exempt:** Describes positions that are not covered under the Fair Labor Standards Act (FLSA) and that are therefore not legally entitled to overtime pay or the minimum wage established by the FLSA. Exempt positions are often known as salaried positions, because their compensation is usually based on a set amount per year rather than an hourly wage.
- **Nonexempt:** Describes positions that are covered by the Fair Labor Standards Act (FLSA); these employees must be paid a minimum wage and overtime for every hour worked over 40 per week.

Customized Instruction

Learning disabled	Research the following terms and definitions, and create an infographic or video to show the definitions. • **Job description:** A document that defines the work done by a particular position in the business. • **Fair Labor Standards Act (FLSA):** A federal law that establishes legal standards for full-time and part-time employees, including minimum wage, overtime pay, and youth labor laws. • **Exempt:** Describes positions that are not covered under the Fair Labor Standards Act (FLSA) and that are therefore not legally entitled to overtime pay or the minimum wage established by the FLSA. Exempt positions are often known as salaried positions, because their compensation is usually based on a set amount per year rather than an hourly wage. • **Nonexempt:** Describes positions that are covered by the Fair Labor Standards Act (FLSA); these employees must be paid a minimum wage and overtime for every hour worked over 40 per week.
Academically gifted	Create a presentation for the class that explains what the Fair Labor Standards Act (FLSA) means for teenagers ages 16–18. Create a visual aid explaining how to use the information as a teen employee.

(continued)

ELL	Create a word wall with images with the following terms: • **Job description:** A document that defines the work done by a particular position in the business. • **Fair Labor Standards Act (FLSA):** A federal law that establishes legal standards for full-time and part-time employees, including minimum wage, overtime pay, and youth labor laws. • **Exempt:** Describes positions that are not covered under the Fair Labor Standards Act (FLSA) and that are therefore not legally entitled to overtime pay or the minimum wage established by the FLSA. Exempt positions are often known as salaried positions, because their compensation is usually based on a set amount per year rather than an hourly wage. • **Nonexempt:** Describes positions that are covered by the Fair Labor Standards Act (FLSA); these employees must be paid a minimum wage and overtime for every hour worked over 40 per week.

Homework Activity: Writing

Dream Jobs

Write a job description for your dream job, following the format shown in Figure 12.1. You may use any job except that of executive chef, and the work must be original.

Homework Activity: Math

Working for a Living

Jimmy, a buser, earns $7.50 per hour and is a nonexempt employee. This week, he is scheduled to work 25 hours. How much will his gross pay be? Next week, he is scheduled to work 50 hours because a colleague will be away. Overtime pay, which is 1.5 times the regular hourly rate of pay, covers all work over 40 hours per week. How much will Jimmy's gross pay be next week?

On the other hand, Pat is a dining room manager. She is an exempt employee and earns $35,000 per year. What will her gross pay be this week? Explain how the pay calculations for the two positions differ.

PAGES 292–293 **LAWFUL HIRING PRACTICES**

Reinforce and Review

- Managers must ensure that establishments comply with all applicable laws, so they must stay abreast of new developments.
- Failure to observe laws may result in complaints, fines, or lawsuits against the company.
- Many laws affecting the restaurant and foodservice industry protect employees from discriminatory, unsafe, unfair, or unethical treatment.

- Companies often employ zero tolerance policies for discriminatory and other inappropriate or illegal behaviors.
- Child labor laws restrict the hours young employees can work and the type of work they can do.
- Most states require that minors provide employers with some proof of age, such as a work permit or an age certificate.

Discuss

- How can smaller restaurants and foodservice establishments ensure that they are obeying relevant hiring and employment laws if they do not have the ability to employ a human resources department?
- In what ways can zero tolerance policies send a statement to employees about the company's ethics and values?
- How can the Fair Labor Standards Act and other state and local laws influence the hiring of minors in the restaurant and foodservice industry?
- How could onboarding take place in a high school setting? How could it ease the transition from middle school to high school? What are some specific elements it could include?
- Encourage students to describe any experiences they have had with onboarding. Why is the concept of onboarding particularly well suited to the restaurant and foodservice industry?

Vocabulary Review

- **Zero tolerance policy:** Policy in which no violation is forgiven—the offender is disciplined accordingly, up to and including termination. For example, a zero tolerance policy might state that if an employee is caught stealing, the consequence will be immediate termination.
- **Child labor laws:** Special laws that offer additional protections for children and youths (minors) to protect them from unsafe conditions in the workplace and from work schedules that may interfere with their education or affect their well-being. Generally, child labor laws restrict the hours young employees can work and the type of work they can do.

Customized Instruction

Learning disabled	Make a list of things that have a zero tolerance policy. Which things do you think should have a zero tolerance policy? Write some notes with your thoughts.
Academically gifted	How do child labor laws work around the world? Research and write a report with your findings. Teacher note: This activity can be customized for a universal group with some additional resources; for example, the following links: • *http://www.un.org/en/events/childlabourday/background.shtml* • *https://www.continuetolearn.uiowa.edu/laborctr/child_labor/about/causes.html* • *http://www.ilo.org/global/topics/child-labour/lang–en/index.htm*
ELL	Create a video to explain or show child labor laws and zero tolerance policies.

PAGES 294–298 **INTERVIEWING JOB APPLICANTS**

Reinforce and Review

- The interviewer's job is to ask questions and think about how well the candidate might fit into the organization.
- An employer must follow hiring and employment practices that protect the civil rights of current and potential employees.
- All hiring and employment practices must be fair and directly related to the job.
- To avoid charges of bias and discrimination, all job candidates should be given the same information about the job and the same application materials, and they should be asked the same kinds of questions during the interview itself.
- Discussing certain topics, even those that may be legal, can result in discrimination charges against the interviewer and employer, as it may leave the impression that these issues factor into hiring decisions.
- Interviewers must keep all job requirements and interview questions directly related to the job.
- The Equal Employment Opportunity Commission (EEOC) and other government agencies enforce laws prohibiting discrimination in the workplace.
- Essential Skills: Creating an Employee Application Form explains how to create an employee application form.

Discuss

- How can following appropriate hiring and employment practices relate to building a positive and harassment-free work environment?
- Diversity is desirable in the workplace, but it is illegal to ask questions related to certain types of diversity during job interviews. Ask students to explain this apparent dichotomy.
- Employee turnover is typically high in the restaurant and foodservice industry, so it is important to encourage the broadest possible range of qualified applicants. What can a manager do to attract the best possible candidates for the job? How does this relate to becoming an employer of choice?
- Encourage students to share how their job-seeking experiences have or have not mirrored the process described in the textbook. Have interviewers been formal or informal? Have they offered written job descriptions and other information about the position, or has all the information been given verbally? How can the use of written documents protect employers?
- Why should interviewers use the same list of questions with each candidate? What if the applicant makes a comment that could open up a new area of information? Should the interviewer keep to the script?

Vocabulary Review

- **Equal Employment Opportunity Commission (EEOC):** Government agency that enforces laws that ensure everyone, regardless of race, age, gender, religion, national origin, color, or ability/disability, gets a fair chance at any job opening.

- **Discrimination:** Making a decision based on a prejudice (a general attitude toward a person, group, or organization on the basis of judgments that are unrelated to abilities).

Customized Instruction

Learning disabled	Create a video informing the public about the following terms: • **Equal Employment Opportunity Commission (EEOC):** Government agency that enforces laws that ensure everyone, regardless of race, age, gender, religion, national origin, color, or ability/disability, gets a fair chance at any job opening. • **Discrimination:** Making a decision based on a prejudice (a general attitude toward a person, group, or organization on the basis of judgments that are unrelated to abilities).
Academically gifted	What happened before the Equal Employment Opportunity Commission (EEOC)? Research the history, timeline, and legacy of the EEOC in modern times. Create a presentation to share with the class.
ELL	Create a poster or video to show how to use the Equal Employment Opportunity Commission (EEOC) to prevent discrimination. Make sure to use professional language and behavior to convey your thoughts on this sensitive matter.

Knowledge Check Answers (Page 298)

1. The six components of a job description include:
   - A job title, which gives the name of the position being described
   - A job summary, which briefly describes the position's responsibilities
   - The primary responsibilities; a list of the position's most important functions
   - The knowledge and skill requirements, which describes the performance background required to hold the position
   - Working conditions; the context in which the employee holding the position will be expected to work
   - Education requirements; the formal and informal education required to hold the position
2. Child labor laws are special laws offering additional workplace protection for children and youths.
3. Managers must use standardized tools and practices to make sure every application is treated fairly and consistently.

PAGES 298–299 **ONBOARDING**

Reinforce and Review

- Onboarding is a process that begins with a candidate's first interaction with a company and may continue through his or her first year of employment.
- A good onboarding program fulfills the needs of both the employer and the employee.

- Onboarding builds relationships among employees as well as between the new employee and the company itself.
- Companies that practice onboarding must consider how to integrate new employees into the workforce.
- Onboarding programs can protect companies in two important ways. First, onboarding teaches new employees to perform tasks safely and accurately. Second, a good onboarding program can satisfy certain legal needs.
- A well-planned onboarding program reduces the time and cost of helping an employee become productive and motivated.

Discuss

- How could onboarding take place in a high school setting? How could it ease the transition from middle school to high school? What are some specific elements it could include?
- How can onboarding help improve employee retention rates?
- How is onboarding related to a positive work environment? In what ways does it involve communication skills?
- Onboarding costs money. Wages and salaries of all the staff engaged in the onboarding process and not actually performing their regular duties can be expensive. In what tangible and intangible ways is onboarding valuable to a company? If you were an employer, would you onboard new staff? Why or why not? How can onboarding save a company money in the long run?
- What is a culture of hospitality, and how can it be extended to coworkers as well as to guests? How is it related to the presence or absence of a positive work environment?

Vocabulary Review

- **Onboarding:** The process a company uses to integrate new employees into an organization, the goal being to give the company a better chance at making sure the people they hire stay in their jobs.

Customized Instruction

Learning disabled	Write an onboarding presentation for kindergarten students beginning school, including visual aids like posters or a children's coloring book, to convey the important things kindergarten students should know in beginning their school careers.
Academically gifted	Research several online profiles for companies that you admire. What types of things are included in their onboarding systems? Write an opinion essay with your thoughts on the most effective way to onboard new employees.
ELL	Working in groups, write an onboarding program for first-year culinary students, using videos or images to show the things that will be a part of onboarding in the program.

In-Class Activity: Literacy

New Hire Packets

What documents and other items should be part of a new hire packet? As a hiring manager, what items do you think would not only make the new employee feel welcome but also give him or her all the tools necessary to do the job without feeling overwhelmed?

Make a list of the documents and other items that you think would be appropriate to include in a new hire packet. After 10 minutes, exchange your list with another classmate. How are the two lists similar? How are they different? Discuss as a group.

In-Class Activity: Math

Policy Planning

Working in small groups, review Table 12.2. The groups should select one item from each of the four main categories and draft a policy addressing each.

The policies that each group writes should be as comprehensive as possible. They should assume they are creating policies for their own businesses.

At least one of the policies needs to include a mathematic example of the policy's effects. For instance, if the group chooses to draft a policy on paid holidays, then the group would not only need to explain who is eligible for pay and what days would be considered paid holidays, but would also need to include an example of how the process would work:

Sally is a full-time line cook, paid $12 per hour. She typically works a Wednesday–Sunday week. If a paid holiday falls during that Wednesday–Sunday week, then she will be paid her normal weekly pay despite working only four days, as follows:

- $12 per hour, multiplied by 4 days worked at 8 hours per day
- $12 × (4 x 8) = $384
- $12 per hour, multiplied by 1 paid holiday covered at 8 hours per day
- $12 × (1 × 8) = $96

Therefore, Sally's gross pay for the week would remain $480 ($12 × 40 hours of work).

If the paid holiday falls on a Monday or Tuesday, Sally is not eligible for holiday pay and will work her normal Wednesday–Sunday schedule.

After each group has drafted its policies, join as a class to discuss the choices each group made.

PAGES 300–301 ORIENTATION

Reinforce and Review

- The purpose of orientation is to make new employees feel comfortable in their new jobs, know what their responsibilities are, and feel like part of the team.
- The type of training a new employee receives depends on the size of the organization and the job.
- The purpose of training is to be sure that employees know how to do a job on their own.
- Orientation programs both provide information about the company and provide information about the job.

Discuss

- The type of orientation a new employee receives typically depends on the size of the organization. How might the quality of the process differ based on the organization's size as well? How might turnover be affected?
- Why is reviewing the job description an important part of most orientation processes? How can this help a new employee feel more secure?
- How are onboarding and orientation essential components of organizational communication? Who is communicating with whom?

Vocabulary Review

- **Orientation:** Process that helps new employees learn about the procedures and policies of the operation and introduces them to their coworkers. The purpose of orientation is to make new employees feel comfortable in their new jobs, to let them know what their responsibilities are, and to make them feel they are part of the team.
- **Employee manual:** A manual handed out to new employees during orientation that includes all of the operation's policies and procedures. An employee manual contains general information about employment, including company policies, rules and procedures, employee benefits, and other topics related to the company. When employees receive the employee manual, they should sign a form stating that they have received it. The employee's signature means that he or she has read the information and agrees to follow the rules and policies it contains.
- **Probationary period:** Status given to new employees of a company for a certain period of time that allows a manager to evaluate new hires to make sure they are good, reliable workers who fit in with coworkers and the business. A probationary period allows an employer to terminate a new employee who is not working out for the company.
- **Pension:** Money a company pays to a retired employee from a fund the employee earned as a benefit while working.
- **Profit sharing:** A system in which employees of a company receive a part of that company's profits.

Customized Instruction

Learning disabled	Create a graphic organizer to show the definitions of the following key terms with images: • **Orientation:** Process that helps new employees learn about the procedures and policies of the operation and introduces them to their coworkers. The purpose of orientation is to make new employees feel comfortable in their new jobs, to let them know what their responsibilities are, and to make them feel they are part of the team. • **Employee manual:** A manual handed out to new employees during orientation that includes all of the operation's policies and procedures. An employee manual contains general information about employment, including company policies, rules and procedures, employee benefits, and other topics related to the company. When employees receive the employee manual, they should sign a form stating that they have received it. The employee's signature means that he or she has read the information and agrees to follow the rules and policies it contains. • **Probationary period:** Status given to new employees of a company for a certain period of time that allows a manager to evaluate new hires to make sure they are good, reliable workers who fit in with coworkers and the business. A probationary period allows an employer to terminate a new employee who is not working out for the company. • **Pension:** Money a company pays to a retired employee from a fund the employee earned as a benefit while working. • **Profit sharing:** A system in which employees of a company receive a part of that company's profits.
Academically gifted	Research pensions in modern times. What types of jobs offer pensions? What is the alternative to pensions? How do you plan to save for retirement? Write a response with your findings and thoughts on the matter.
ELL	Write a song or skit using the terms that follow and showing the action of each term in the performance. Record a video or present live in class. • **Orientation:** Process that helps new employees learn about the procedures and policies of the operation and introduces them to their coworkers. The purpose of orientation is to make new employees feel comfortable in their new jobs, to let them know what their responsibilities are, and to make them feel they are part of the team. • **Employee manual:** A manual handed out to new employees during orientation that includes all of the operation's policies and procedures. An employee manual contains general information about employment, including company policies, rules and procedures, employee benefits, and other topics related to the company. When employees receive the employee manual, they should sign a form stating that they have received it. The employee's signature means that he or she has read the information and agrees to follow the rules and policies it contains.

(continued)

ELL *(cont)*	• **Probationary period:** Status given to new employees of a company for a certain period of time that allows a manager to evaluate new hires to make sure they are good, reliable workers who fit in with coworkers and the business. A probationary period allows an employer to terminate a new employee who is not working out for the company. • **Pension:** Money a company pays to a retired employee from a fund the employee earned as a benefit while working. • **Profit sharing:** A system in which employees of a company receive a part of that company's profits.

PAGES 302–304 **TRAINING**

Reinforce and Review

- Training helps employees do their jobs better by helping them feel confident that they are an effective and efficient part of a team. Training combats turnover by keeping current employees and helping new employees become productive faster.
- The ability to train replacements is a critical skill in the rapidly growing restaurant industry.
- Employees benefit from cross-training by becoming more skilled, and thus, more valuable.
- Cross-training benefits the organization more than the individual in the immediate sense, because employee absences and sudden surges in demand can be readily accommodated.
- On-the-job training allows employees to demonstrate skills and reinforce what they have been taught. It also allows the trainer to monitor performance and give feedback.
- Video: Six Key Points to Effective Employee Training. For a video on six key points to effective employee training, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- All staff need training at some point, and all employees deserve a positive work environment. How can effective training be a part of a positive work environment?
- According to the old saying, "You have to spend money to make money." How can spending money on employee training save money in employee turnover and increase sales?
- How do trainers themselves learn the important skills listed on page 303? In what ways can they improve their skill sets?
- Employers invest significant amounts of money in training their employees. Trained employees are very attractive to other employers, who may seek to hire them away. How can employers retain these skilled employees?

- How are flexibility and cross-training related? How can either affect the employer or the employee? What role does communication play in these matters?
- Why do students think on-the-job training is so popular in the restaurant and foodservice industry? What makes it a particularly appropriate training method for this industry? Are there any downsides to on-the-job training?
- Why must trainers be sure to verify that employees can perform the tasks on which they have been trained? To what extent can the verification process also be one of self-reflection? What can the trainer learn from the employee about improving the training process for the next employee?

Vocabulary Review

- **Training:** Efforts that improve the skill, knowledge, and attitude of employees for their jobs. Effective training is essential to the productive functioning of an operation and should improve the quality of employee work, promote employee growth, keep employees challenged and satisfied in the organization, and create talent to help the organization grow.
- **Cross-training:** Situation in which employees learn the functions of another job within the operation.
- **On-the-job training (OJT):** The teaching of skills that are easily demonstrated and practiced while working, such as preparing menu items, operating cash registers, and using tools and equipment. It is a popular form of training that allows the trainer to monitor employee progress, give feedback, comment about or correct an action or process, and correct tasks that are not being done properly. There are four steps to on-the-job training: (1) prepare, (2) present, (3) practice, and (4) follow-up.

Customized Instruction

Learning disabled	Plan a training seminar to teach "coworkers" how to perform a series of tasks or to develop a skill of your choosing. Design the agenda. What do you include, and what do you omit? Review your agenda with another student to determine whether it is clear, logical, and effective. What improvements does he or she suggest?
Academically gifted	Design a training program for new students that will be entering the class as first-year students next year. Using the syllabus, write a series of training sessions to introduce students to the class and the curriculum. Film these sessions with classmates.
ELL	Use Table 12.3: Six Key Points of Effective Employee Training to film short skits to describe the action in each point to show what effective training looks like.

PAGES 304–307 PERFORMANCE APPRAISALS

Reinforce and Review

- Employee performance evaluation is similar to school grades or report cards. An employee performance appraisal is a formal evaluation of a person's work performance over a specific period of time.
- Formal evaluations give the manager and employee an opportunity to communicate, discuss how well the employee is doing, and set performance goals. The evaluations become part of the employee's record at the particular company, just as grades are part of a student's academic record.
- A good evaluation program begins on the employee's first day on the job, with employee progress reviewed regularly throughout his or her time with the company.
- Managers and employers should keep files on each employee and record any important information, including pay raises, special projects completed, achievements, problems with coworkers, excessive lateness, or absenteeism.
- If an employee is not performing well, set goals to improve the situation. If employee performance does not change, you must document problems, counsel the employee, and give verbal and written warnings.
- The most effective way to rate employee performance is through the use of a performance appraisal form.
- After discussing each area on the form, the manager and employee must agree on measurable goals for the future.

Discuss

- If you were appraised on your grades and attendance for a performance review right now, would you get a raise?
- What types of measurable goals have you set at school?
- What are some ways you are appraised on your performance right now?
- Are standardized tests the only way to test performance?
- How would you appraise yourself in your current school or work environment? For example, in this class or at your job, how do you think you are doing?

Vocabulary Review

- **Employee performance appraisal:** A formal evaluation of a person's work performance over a specific period of time.
- **Performance appraisal form:** Company form used to rate employee performance during an official evaluation. The manager and employee usually discuss the details of the form and agree on measurable goals for the future. Employees can ask questions and discuss their appraisal before signing and dating the form to acknowledge they agree with the evaluation.

Customized Instruction

Learning disabled	Using your report card, write a personal performance appraisal that discusses your overall performance and learning for each subject, beyond the letter grade.
Academically gifted	Write a performance appraisal for yourself, as a way to estimate strengths and weaknesses. Work with your instructor to review the evaluation.
ELL	Working in small groups, students should select something other than a class that can be apprised objectively. Good choices might include a book, an event, or a restaurant. Once the subject has been selected, students should adapt the Performance Appraisal Form in Figure 12.8 as needed. They should determine four main categories on which the subject can be assessed, and then identify at least three more specific characteristics. For example, if a group chooses to rate a supermarket, then one category could be "Variety of Goods Sold," and one characteristic within that category could be "Quality of Fresh Produce." Each group should present an oral report on its subject, explaining how it was selected and appraised, as well as its performance.

Knowledge Check Answers (Page 307)

1. Onboarding is the process a company uses to integrate new employees into the organization, improving employee retention rates. (p. 298)
2. The purpose of orientation is to make new employees feel comfortable in their new jobs. (p. 300)
3. Properly training employees is critical to the success of any organization. It improves the quality of employee work, promotes employee growth, keeps employees challenged and satisfied in the organization, and creates talent to help the organization grow. (p. 302)
4. Cross-training benefits employees by giving them more skills and thereby making them more valuable. It also makes them more eligible for promotion and pay increases. (pp. 302–303)
5. A performance appraisal is a formal evaluation of a person's work performance over a specific period of time, often tied to promotions and pay increases. (p. 304)

PAGE 308 CASE STUDY FOLLOW-UP ANSWERS: "MANAGING COSTS"

1. Students can suggest a variety of ways that Judy can help Stephen become more knowledgeable, but they should be sure to discuss onboarding and orientation in their answers. For example, Judy should make sure that Stephen's trainer is qualified to cross-train him on his new responsibilities and should provide oversight and testing opportunities to ensure that Stephen thoroughly understands his new role.
2. Chef Mike should make sure that Stephen's trainer is qualified to cross-train him on his new responsibilities and should provide oversight and test opportunities to ensure that Stephen thoroughly understands his new role.

PAGE 308 CHAPTER ACTIVITIES ANSWERS

- **Mock Interviews:** Working in pairs, students will need to find a job description online, print it, and review it. Each student should prepare a list of interview questions to ask each other to determine if the other is qualified for the position. Students should take turns being the interviewer and interviewee.

  Sample interview questions are:

  - "Tell me about yourself."
  - "What are your strengths? What are your weaknesses?"
  - "Why should I consider hiring you?"
  - "Why do you want to work here?"
  - "Where do you see yourself in five years?"

- **Who Are You?:** Students will need to go online and find a personality test (*https://www.123test.com/personality-test*). A personality test is a questionnaire designed to reveal aspects of an individual's character or psychological makeup.

- **Training Day:** Students can create an orientation agenda covering the new hires' first day (eight hours). It might look something like this:

  Employee name: _____

  Date hired: _____ Date of orientation: _____

  Position (tasks): _____

  Supervisor (trainer) name: _____

Topic	Time frame	Employee initials	Trainer initials	Comments (follow-up required?)
Human resources paperwork				
Safety training				
Break				
Tour				
Lunch				
Shadowing				
POS				

- **What's the Job?:** The new restaurant concepts should describe the type of food you'll be preparing in your restaurant, describe the ways that your restaurant's decor will work in synergy with your menu's theme, identify the target market for your restaurant's concept, and detail the way your restaurant's business model will earn revenue and make a profit. Students will then need to do online research to find out the job descriptions for an entry-level prep cook, server, and executive chef. One suggested site is the Bureau of Labor Statistics (*https://www.bls.gov/ooh*). Students should address and explain each position's job title, a summary description, primary responsibilities, knowledge and skills required, working conditions, and educational requirements. Students can refer back to page 291 for a sample job description.

- **How to Build a Team:** Students need to contact and interview a local restaurant owner and manager and ask them about their hiring practices. During the interview, students should take notes, and after the interview, they should write a two-page paper sharing details of the interviewee's responses.
- **Do What I Do?:** Students should clearly define the steps involved in performing the chosen task. For example, a server might:
  - Welcome guests
  - Bring water
  - Take drink orders
  - Explain the menu
  - Take food orders
  - Deliver food
  - Follow up

  And this student might assume that on-the-job training is best for this type of activity.

PAGE 309 EXAM PREP ANSWERS

1. D (p. 298)
2. D (p. 303)
3. A (p. 302)
4. C (p. 292)
5. A (p. 290)
6. A (p. 295)
7. A (p. 304)
8. A (p. 294)
9. C (p. 304)
10. A (p. 304)

Chapter 13
Teacher's Companion

CHAPTER OVERVIEW

This chapter introduces students to sustainable practices in the restaurant and foodservice industry as well as the challenges and opportunities involved in introducing and following them. The importance of water conservation and energy conservation are discussed. Alternate forms of waste management and sustainable food practices are also covered.

CHAPTER OBJECTIVES

13.1 Define the terms sustainability and conservation.

13.2 Explain why water conservation is important.

13.3 List ways in which a restaurant or foodservice operation can improve its water usage efficiency.

13.4 Explain the differences between renewable and nonrenewable energy sources.

13.5 Explain why using energy efficiently is important.

13.6 List ways in which a restaurant or foodservice operation can improve its energy usage efficiency.

13.7 List ways in which a restaurant or foodservice operation can build or make structural improvements to its facility in a sustainable way.

13.8 Identify ways to reduce the total amount of waste in a restaurant or foodservice operation.

13.9 List items that a restaurant or foodservice operation can reuse.

13.10 List items that a restaurant or foodservice operation can recycle.

13.11 Define the term local sourcing.

13.12 Describe different types of growing practices.

13.13 Identify the steps a restaurant or foodservice operation should take to purchase and then promote the use of sustainable food products.

13.14 Identify the issues surrounding the global production of seafood, coffee, animals, and organic food.

ADVANCE PREPARATION

Review	• Chapter 13, pages 314–335 • Unit case study, "Today's Operational Concerns," pages 312–313
Contact	• A guest speaker from a local utility company • A guest speaker from a local "green" building • A guest speaker from a local building authority • A guest speaker who is a LEED expert • A guest speaker from a food rescue program or from a restaurant or foodservice organization that participates in that program • A guest speaker who is a local food producer, such as a farmer or cheese maker
Prepare	• Obtain an incandescent light bulb, an LED light bulb, and a CFL light bulb, as well as a lamp with which they can be used • Obtain images of "green" buildings • Obtain photographs of open- and closed-system fish farms

CHAPTER BREAKDOWN

PAGE 316 **INTRODUCTION**

Discuss

- How can students work independently to promote sustainable habits in the restaurant and foodservice industry? In what ways do individual efforts differ from group efforts?
- Discuss whether it is important for restaurant and foodservice operations to observe sustainable practices. What are the advantages and disadvantages, both in the short term and in the long term?
- What is the relationship between sustainability and finances, both for small restaurants and for the American economy?

Homework Activity: Math

Small Actions, Big Effects

Making small changes can produce significant results. Each student should identify one small lifestyle change he or she can make that would be considered a sustainable practice: recycling cans and bottles instead of placing them in the garbage, consuming fewer food items that have nonrecyclable packaging, taking shorter showers at slightly cooler temperatures, and so on. Students should then make the change for one week.

Students should record the effects of this change on their daily lives. Is the selected change simple to make, or does it require more effort? How does the student feel about making the change? In what ways is making this change a step toward sustainability? Each student should write a brief essay addressing these issues.

PAGES 316–317 SUSTAINABILITY AND CONSERVATION

Reinforce and Review

- The U.S. Congress began creating national parks in 1864, an early example of the importance of conservation. Both the Sierra Club and the Audubon Society were founded in the late nineteenth century.
- Throughout the twentieth century, lawmakers and environmentalists have worked to control pollution and protect endangered species and locales.
- The U.S. government founded the EPA in 1970; today, much of its focus has been on finding ways to preserve natural resources, such as water and energy.
- According to principles of sustainability, people should use resources in ways that don't compromise future abilities to use those same resources.
- Restaurant and foodservice operations rely on a wide variety of natural resources to meet daily operational needs.

Discuss

- What does "going green" mean? How can different people interpret it in different ways, and why?
- Are students surprised to learn of the long history of the American conservation movement? Why or why not? How do students think this movement might have evolved over the decades, and why?
- The EPA is a federal agency, part of the executive (presidential) branch of government. Can its mission and agenda be affected by whichever political party holds the presidency, or is it immune to political pressure due to the nature of its work? How might its research and recommendations be changed, if they are based on scientific fact?

Vocabulary Review

- **U.S. Environmental Protection Agency (EPA):** A federal agency with the mission of protecting human health and the environment. Much of the EPA's focus has been to find ways to conserve water, energy, and other natural resources. It researches new technologies, makes recommendations about business practices, and promotes practices that use energy and other resources as efficiently as possible.
- **Sustainability:** Practices that meet current resource needs without compromising the ability to meet future needs—or using resources in ways today that do not hurt the future ability to use those same resources.
- **Conservation:** The practice of limiting the use of a resource, such as water, forests, or wild-caught seafood.

Customized Instruction

Learning disabled	What does the EPA do? Conduct research using the government website to discover ways the EPA operates today, and how the EPA has made an impact in the past. Teacher note: *https://www.epa.gov*
Academically gifted	Research the most current platform of the EPA, and write a report about what new changes are being made. Compare and contrast former platforms with the current, and include in your response your opinions on the most recent recommendations.
ELL	Film a video that shows the difference between sustainability and conservation, showing the actions involved in each idea.

Homework Activity: Science

Environmental Refugees

Throughout the centuries, climate and other environmental changes have forced people to leave their homes and travel to new lands in search of food, shelter, and employment. As water shortages become more pervasive, it is expected that the number of environmental refugees will continue to increase.

Research the issue of environmental refugees. Globally, what regions have been most affected, and in what ways? Select a particular state or geographic area that has experienced environmental changes that have resulted in environmental migration and describe the challenges it has faced. Write a one-page report discussing your findings.

PAGES 317–318 **SUSTAINABLE FOOD PRACTICES**

Reinforce and Review

- Over the last 10 years, both chefs and consumers have become increasingly conscious of the issues involved in sustainable food production.
- Restaurant and foodservice operations can often attract customers by offering foods produced locally.
- There is no established rule about what makes an item or a source "local."
- The spirit of local sourcing is to purchase food that comes from a relatively close source and supports the surrounding economy and communities.
- Depending on the situation, local sourcing can also limit the number of food miles required to prepare and serve a meal, thereby reducing the amount of energy and the cost used to provide the food.
- Food miles are not the only standard by which to judge the sustainability of an item; the methods used to produce the item are also important.

Discuss

- Why might offering locally produced foods, such as vegetables or cheeses, help attract guests to a restaurant or foodservice operation?
- In what ways can offering these items benefit both the operation and the community?
- What does "local" mean? Does it matter where food is produced, as long as it tastes good?
- How can committing to purchasing only locally grown foods affect a restaurant or foodservice operation's menu?

Vocabulary Review

- **Greenhouse gases:** Gases in the atmosphere that contribute to the greenhouse effect, or global warming, by trapping heat around the earth.
- **Local sourcing:** Refers to restaurants' use of food that was grown in the surrounding region (from local sources).
- **Food miles:** The amount of travel needed to get food products from their origin point to their retail market.

Customized Instruction

Learning disabled	Have you ever grown food in a garden? What are the pros and cons of doing this, outside of having to pull weeds? Write a personal response with your experiences. If you have not had a garden, would you like to try it? Why or why not?
Academically gifted	Write a biography about a local food producer. Interview the subject about duties, motivation, and how he or she got into the business.
ELL	Make a list of three of your favorite foods, using recipes where all of the ingredients are also listed. Could you make these items with only local ingredients? Write out the origins or points of harvest for each item, and explain if it is possible or not.

Homework Activity: Literacy

Across the Miles

What is the "100-mile diet"? Would it be easy or difficult for you to follow these prescriptions? Why or why not?

Share your thoughts in an essay, describing your findings.

Homework Activity: Science

Human Activity and Climate Science

Does human activity affect climate change? Despite much study, scientists, politicians, and the public cannot agree. What do you think?

Discuss your beliefs on climate change in a one-page essay, defending your position.

Homework Activity: Math

Barrels of Money

What is the current price of a barrel of oil? If the United States consumes 19.6 million barrels of oil per day, how much does it spend on oil consumption in a week? In a year?

PAGES 318–322 **FOOD PRODUCTION**

Reinforce and Review

- Industrialized animal farming practices can provide a high volume of meat for a low price, but they can also consume large amounts of energy and water while producing large amounts of waste and carbon dioxide. Moreover, these practices are sometimes characterized as inhumane.
- Organic farmers typically conserve soil and water, do not use pesticides or synthetic fertilizers to grow crops, and do not use antibiotics or growth hormones to treat animals.
- Organic items are often more expensive than conventionally produced foods, although some consumers are willing to pay higher prices for what they consider to be better options.
- Coffee production accounts for 30 million acres of land in 60 countries; rapidly increasing global demand has resulted in new agricultural techniques that can produce more coffee more quickly and on less land.
- Sun coffee plantations require substantial management, including the use of pesticides and fertilizers, to produce abundant crops.
- Shade coffee farms not only provide coffee, but also provide habitat for migratory birds and other species.
- Some factors that contribute to the depletion of fish stocks include overfishing, bycatch, bottom trawling, habitat damage, and pollution.

Discuss

- Why has there been such a significant increase in both global food demand and demand for animal foods?
- Why has the debate over industrialized animal farming practices become so prominent in recent years?
- How do consumers decide whether or not to spend more money to purchase organic foods?
- Is there a "good" or "bad" method of coffee production? Why or why not?
- Why are Americans more likely to consume fish in restaurants than at home?
- How can the menu choices a restaurant or group of restaurants makes affect fishing choices?
- Should there be globally established rules for aquaculture practices? Why or why not?

Vocabulary Review

- **Organic:** Refers to food products that have been produced without pesticides or synthetic fertilizers. Organic farmers usually conserve soil and water and do not treat animals with antibiotics or growth hormones.
- **Sun coffee:** Coffee grown in the sun in densely planted farms that require fertilizers and pesticides.
- **Shade-grown coffee:** By this traditional method, coffee trees grow under taller rain forest trees, whose larger leaves shade the crop. The forests are frequently home to many wildlife species, including amphibians and birds, and a large variety of trees. The habitat is essentially left to itself, and the coffee trees often grow without fertilizer or pesticides.
- **Aquaculture:** The farming of seafood under controlled conditions.

Customized Instruction

Learning disabled	Use the following key terms to search for images that tell the story for each item. Perform research on each, and use the images to show the findings in your research. • **Organic:** Refers to food products that have been produced without pesticides or synthetic fertilizers. Organic farmers usually conserve soil and water and do not treat animals with antibiotics or growth hormones. • **Sun coffee:** Coffee grown in the sun in densely planted farms that require fertilizers and pesticides. • **Shade-grown coffee:** By this traditional method, coffee trees grow under taller rain forest trees, whose larger leaves shade the crop. The forests are frequently home to many wildlife species, including amphibians and birds, and a large variety of trees. The habitat is essentially left to itself, and the coffee trees often grow without fertilizer or pesticides. • **Aquaculture:** The farming of seafood under controlled conditions.
Academically gifted	What does organic really mean? Non-GMO? Local? Dive into the world of food labeling, and the movement that is behind getting more transparency in defining terms that go on the labels of our foods.
ELL	How is coffee made? How are fish farmed? What are the challenges to farming the organic way? Find video clips to show the story behind each question posed above. Take notes to describe what you saw.

Knowledge Check Answers (Page 322)

1. Conservation is the practice of limiting the use of a resource. Sustainability is the practices that meet current resource needs without compromising the ability to meet future needs. (p. 317)
2. Restaurants can promote sustainability by using locally sourced food, managing waste, and conserving water and energy. (p. 317)

3. A local source is a supplier offering food produced in the surrounding growing region. Local sourcing uses such suppliers for food products. (p. 317)
4. Organic food is produced without pesticides or synthetic fertilizers. (p. 318)
5. Aquaculture is the production of seafood under controlled conditions. It accounts for 50 percent of the fish consumed globally. (p. 321)

Homework Activity: Math

Fishy Business

Visit a local supermarket. What types of seafood are available fresh, frozen (including processed, such as fish sticks), or canned? How many different fish and shellfish are represented?

In-Class Activity: Literacy

Coffee Options

If you were a restaurant or foodservice manager, would you serve shade-grown coffee or sun coffee in your establishment? What factors might affect your decision?

PAGES 322–324 **WATER CONSERVATION**

Reinforce and Review

- Water resources in the United States are found in surface water (all the water atop the earth's surface, including snow) and groundwater (all the water that has been absorbed into the earth).
- The effects of a disappearing water supply can be devastating: decreased food supply with increased prices; fewer businesses and more unemployment; environmental conditions can change, affecting human and community health; and severe population imbalances can arise, due to environmental immigration.
- Water conservation is a critical principle of sustainability; because restaurant and foodservice operations typically use a great deal of water, it is important for them to identify ways in which they can conserve this resource.
- Although there are many steps an operation can take to conserve water, these should never be taken at the expense of guests or of basic food safety principles. Appropriate conservation techniques can save water, protect food, and satisfy customers.
- Video: What Can the Industry Do? For a video on what the industry can do to help with water conservation, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Do students know their community's water sources? Does the area rely primarily on groundwater or surface water?
- Explain how short-term and long-term water shortages can affect schools and communities. What effects might these shortages have on the restaurant and foodservice industry?
- How is it possible that Americans use more than 100 gallons of fresh water apiece each day? What might account for all this use?
- What food safety principles could be involved in water conservation? What pathogens can thrive in water?
- How can the restaurant and foodservice industry capitalize on its conservation of resources in its marketing campaigns?

Vocabulary Review

- **Surface water:** Includes all of the water that is on top of the earth's surface, from lakes and oceans to the snow on mountain caps.
- **Groundwater:** Freshwater (not salty) found beneath the earth's surface; the water that the earth has absorbed.

Customized Instruction

Learning disabled	Where does your water come from? Find out your local water source, and where it comes from. Take notes on your findings.
Academically gifted	Review the local policies on inspecting tap water versus the inspection process for bottled water. What did you find? Write a response to show your research and thoughts on the subject.
ELL	Do you live in an area with drought? Explain in a response your local conditions, and compare it to an extreme opposite example, like living in an area with lots of rain and flooding issues or an area experiencing drought. Explain your experience and what you think the opposite would be like. Teacher note: One comparison might be southern versus northern California, where water is debated in policy. A more international example may be the 2017 drought and famine in Somalia. A national disaster, like hurricane Katrina in New Orleans, may be an extreme example of flooding. Focus on directing students to use descriptive language to show the emotional setting of the extreme.

Homework Activity: Science

Banning the Bottle

Some communities around the world have banned bottled water, arguing that bottling water increases both water waste and overall pollution, as the bottles must be made, filled, and shipped. Research these bans and their effects. Do you support or oppose these bans? Why?

Write a one-page report describing the bans and their effects, as well as why you support or oppose these bans.

Homework Activity: Math

Water, Water

If possible, look at your home water bill. Call the water company to find out the average usage for similar households. Is your household use above or below the average? How do you explain the difference? Write a report on your findings.

PAGES 324–328 **ENERGY CONSERVATION**

Reinforce and Review

- Much of the energy used in the United States is nonrenewable, which means that it cannot be renewed and that it could be used up. Many nonrenewable energy resources are fossil fuels, such as natural gas, coal, propane, and petroleum.
- Burning fossil fuels to provide energy results in both air pollution and greenhouse gas emissions.
- Renewable energy sources, such as water (hydropower) and wind, can be replenished quickly.
- To produce energy, wind flows over the blades of wind machines, which forces them to turn, thereby generating electricity.
- Solar energy can be converted to electricity either through the use of "solar cells" or by converting the energy to steam.
- Geothermal energy is the heat produced within the earth.
- Biomass contains stored energy from the sun through photosynthesis.
- ENERGY STAR, a program developed jointly by the EPA and the U.S. Department of Energy, offers free resources to help managers track their energy use.
- Video: What Can the Industry Do? For a video on what the industry can do to help with energy conservation, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- What examples of renewable energy resources are used in your community? Why are they important?
- Does an operation's use of renewable resources change the way in which it actually uses energy to meet its needs? Why or why not?
- Does the use of renewable resources always mean saving money? In what ways can introducing renewable energy sources increase costs, at least in the short term?
- In what ways can students practice energy conservation at school? What about at home?
- Many of the suggestions offered here to reduce energy savings require no new technology, just some simple changes in habits. Why might a restaurant or foodservice operation not have taken these steps already?

Vocabulary Review

- **Nonrenewable energy:** Energy that is not renewable, meaning we could run out of it eventually.
- **Fossil fuels:** Fuels formed over millions of years from plant or animal remains buried deep in the earth.
- **Renewable energy:** Sources of energy that do not rely on a finite supply, directly emit greenhouse gases, or contribute to air pollution, and that can be replenished quickly. These include water (hydropower), wind, solar, geothermal, and biomass.
- **"Green":** In terms of environmental impact and energy efficiency, "green" describes something designed to conserve energy, use resources more efficiently, and reduce the overall impact on the environment.

Customized Instruction

Learning disabled	It's hard to be green. Or is it? Make a list of the actions you take each day that work toward the conservation of resources. Alternate: Write a skit or presentation to explain to young children some of the concepts of sustainability found in this chapter. Use costumes and/or visual aids, and plan to share the information you have learned with an elementary classroom. This could also be a coloring book, Earth Day project, or a joint-service learning project for the school.
Academically gifted	Research the beginning of the environmental movement by reading *Silent Spring* by Rachael Carson. Write a book review with your thoughts on the changes from 1962 to the present. Teacher note: • *http://www.rachelcarson.org/SilentSpring.aspx* • *http://www.rachelcarson.org/Research.aspx*
ELL	Make a graphic organizer that shows the impact and the cause and effect of the key terms nonrenewable energy, fossil fuels, renewable energy, and "green." Create or find images or film videos to show the action within the definitions.

Homework Activity: Literacy

Incentives to Change

What incentives to install energy-conserving technology are available in your area, either for households or for businesses? Research local utility providers to learn what benefits they offer.

Describe your findings in a one-page report.

Homework Activity: Science

Renewing the World

Which form of renewable energy do you find most interesting? Research this energy source to learn more about it. Create a poster or slide-show presentation to share the information you have learned.

Homework Activity: Writing

Energy Efficient

Research the ENERGY STAR program. What benefits does it offer? How can it help restaurant and foodservice operations save money and conserve resources?

Describe your findings in a one-page report.

PAGES 328–332 **WASTE MANAGEMENT**

Reinforce and Review

- Efficient waste management can reduce waste, encourage better operating efficiency, and reduce energy and water costs.
- A good plan for efficient waste management focuses on reducing, reusing, and recycling.
- Appropriate methods for reusing food include serving the food in its original format, repurposing the food into another format, or donating the food to a local food rescue program.
- Opportunities for reuse can include purchasing goods made from recycled items, printing and copying documents using both sides of a sheet of paper, and using reclaimed building materials in new construction and renovations.
- Restaurant and foodservice operations can limit the waste they produce by planning smartly. Smart planning involves accurate production forecasting and, where appropriate, bulk purchasing.
- Recycling transforms waste into valuable resources. A variety of used items, including glass bottles, cloth, and paper, can be recycled into useful products.
- Recycling prevents pollution, reduces greenhouse gases, and saves energy; it can also generate revenue for the business.
- Food scraps and certain other kitchen waste can be turned into compost, which can be used to provide nutrients and water to growing plants. Compost is created by putting organic wastes in proper ratios into piles, rows, or vessels and adding bulking agents to accelerate the breakdown of organic materials.

Discuss

- Why is so much commercially prepared food discarded?
- In what ways can students reuse or repurpose items in the classroom kitchen to reduce waste?
- In what ways is waste expensive? Every time a still-useful item is discarded, money is discarded, too. Encourage students to discuss the relationship between waste and costs, both for restaurant and foodservice operations and for households.
- What other steps related to "reducing" can restaurants make that can lower costs?
- What items do students commonly put into garbage bins instead of recycling? What are some incentives that would increase recycling?
- What obstacles prevent restaurant and foodservice operations from recycling? What incentives could help them begin or expand recycling efforts?
- Is it always appropriate to have recycling containers visible to guests in the dining room? Under what circumstances might that be a good or bad decision?

Vocabulary Review

- **Repurposed food:** Food that customers did not eat, but that back-of-the-house staff prepared, cooked, cooled, and held safely in order to be used again. Safety and quality are the key components to making sure this food can actually be repurposed.
- **Controlled environment:** Situation in which food has been within the kitchen's control and has been kept safe from cross-contamination and time-temperature abuse. Food should be in a controlled environment from the time it is received until it reaches the customer. After food is on a customer's table, it cannot be reused.
- **Recycling:** Process whereby waste is transformed into valuable resources.
- **Composting:** Using biological decomposition, which is a natural form of recycling that occurs when organic material decomposes (or composts), to form organic fertilizer, which can be used to help grow plants. Compost is created by putting organic wastes—food leftovers, yard trimmings, and compostable products—in proper ratios into piles, rows, or vessels and adding bulking agents to accelerate the breakdown of organic materials.

Knowledge Check Answers (Page 332)

1. Back-of-the-house staff can thaw food in the cooler, soak and scrape equipment before washing it, maintain appropriate water temperatures, load dishwashers correctly, sweep outside areas, and train one another to conserve. (p. 326)
2. Renewable energy sources do not rely on finite supplies of particular resources, directly emit greenhouse gases, or contribute to pollution. Nonrenewable energy sources are fossil fuels that are formed from plant or animal remains buried deep in the earth. (p. 325)
3. Most of the energy used in the United States is nonrenewable, which means it cannot be renewed and that it could be used up. (p. 324)

4. To reduce energy usage in a restaurant or foodservice operation, turn off the lights when not in use, make sure dishwashers are full before running, power down idle equipment, replace incandescent lighting, use LED light bulbs, and purchase energy-efficient equipment. (p. 326)
5. To construct a more sustainable building, operations should research energy savings, work with LEED experts, and budget for green improvements. (p. 327)
6. A recycling program leads to better operating efficiency and lower energy and water costs. (p. 330)
7. Food can be repurposed by serving it in its original format, repurposing it into another format, or donating it to a local food rescue program. (p. 329)

Customized Instruction

Learning disabled	What happens to Styrofoam? The foodservice industry is known for using the item in many to-go containers. Find out what really happens, and what you can do about it. Teacher note: • *http://www.earthresource.org/campaigns/capp/capp-styrofoam.html*
Academically gifted	Research and develop one service project to help your school handle waste. For example, some schools use the Styrogenie to crush and recycle Styrofoam containers into bricks that can be reused for landscaping. Write an action plan laying out your project. Bonus points if you present the proposal to your local school board for consideration. Think broadly about a project that can make a positive impact for your peers and community. Teacher note: • *http://www.styrosmart.com/modx/assets/SG%20FG%20Brochure%20V1small.pdf*
ELL	Walk around your school, neighborhood, or local shopping area. Take photos of all the Styrofoam and trash you see along the way. Who should pick up the litter? Conduct research and discover if you could plan a cleanup of an area you discovered to be littered with trash and waste. Document your experience with a visual essay.

Homework Activity: Math

Wasting Away

For many people, it is easier to identify waste at home than it is in the workplace. After all, when food or other resources are wasted at home, the cost of the waste comes directly from the household budget. So, why do households waste food?

Research the percentage of food wasted each year by households. What are some reasons for this waste? How much does it cost? How can this waste be reduced?

Discuss your answers in a one-page essay.

Homework Activity: Literacy

Food for Thought

Are there food rescue programs or food banks in your area? How do they operate, and whom do they serve? Who donates food or other resources to these programs? What role do these organizations play in your community?

Write a one-page report discussing these operations and their work.

Homework Activity: Science

Biodegradable Dishes

Learn more about biodegradable dinnerware. What materials are commonly used to produce it? What types of operations are likely to offer it to their customers? How do the costs of manufacturing or purchasing these items differ from conventional disposable dinnerware?

Write a one-page report answering these questions, adding any other relevant information.

Homework Activity: Science

Break It Down

How do organic materials—like wood, eggshells, or cotton—break down to become compost? Research and describe the processes involved in biological decomposition. For instance, how long does decomposition take? What conditions does it require? Why must some organic materials be composted in different ways or not at all?

Discuss your findings in a two-page report.

Homework Activity: Writing

Choices in Composting

There are many ways to compost organic material, ranging from high-tech commercial facilities to simple piles of leaves in a backyard. Identify and describe two distinct types of composting. What are their similarities and differences? Why might one method be chosen over another?

Discuss your conclusions in a one-page report.

PAGE 333 CASE STUDY FOLLOW-UP ANSWERS: "TODAY'S OPERATIONAL CONCERNS"

1. Carl and Leo might consider low-flow spray valves, low-flow toilets, and waterless urinals, sink aerators, energy-efficient dishwashers, on-demand water heaters, and connectionless steamers.
2. Students may respond in a variety of ways, so long as their answers clearly describe ways in which the Lighthouse can use energy more wisely. To be energy efficient, turn off lights when not in use, fully load dishwashers and washing machines, power down idle equipment, seal off unused areas, reduce idle time, clean and maintain equipment regularly, replace incandescent lighting, purchase energy-efficient equipment, and heat water in smart ways.

PAGE 334 CHAPTER ACTIVITIES ANSWERS

- **Down the Drain:** Students will need to do online research to complete this activity. On average, a conventional toilet uses 3 gallons of water per flush. A low-flow toilet uses 1.6 gallons of water per flush. The average price of water in the United States is $1.50 per gallon. Flushing a conventional toilet 25,000 times would cost $112,500. Flushing a low-flow toilet 25,000 would cost $60,000. There is significant savings in using low-flow toilets.
- **Comparing ENERGY STAR and Traditional Equipment:** Students will need to do online research to complete this activity. They should start at energystar.gov and identify specific fryers, griddles, and ovens. For example, students can compare a Star CCOH-4 Half-Size Countertop Convection Oven to an Avantco CO-16 Half-Size Countertop Convection Oven.
- **Sustainable Food Costs:** Students will need to research prices for conventional and organic products to complete this project. For example:

Food Item	Conventional Cost	Organic Cost
Eggs	$2.99	$4.99
Hash browns	$1.99	$2.79
Whole wheat bread	$3.49	$4.50
Yogurt	$1.09	$1.59

- **Stress on the System:** Students should explain what the water restrictions or guidelines are and why they have been enacted. They should also explain why different regions have developed different plans for dealing with water scarcity.
- **Going Green:** Students should do online research to find a restaurant that is "green" and report on a restaurant or foodservice company of their choice.

  For example, a "green" restaurant will use low-flow, pre-rinse spray nozzles at the dishwashing machine; use Energy Star compact fluorescent lamps (CFLs) instead of incandescent bulbs in storerooms, break rooms, offices, wall sconces, kitchen exhaust hoods, and walk-in refrigerators; use ultra-low-flow toilets and flow restrictors on restroom faucets; buy products in returnable, reusable, or recyclable containers; recycle food, cardboard, paper, glass, metal, and plastics; buy recycled-content paper products whenever possible; use take-out containers that can be composted or recycled instead of Styrofoam; maintain grease traps and kitchen hoods to prevent overflows and emissions to the sewer; keep outdoor waste storage, parking, and sidewalks free of litter; and use organically or sustainably produced foods in the kitchen.

- **Sustainability Trade-Offs:** Student answers may vary, so long as they defend their positions appropriately. They should consider the benefits of sustainability measures versus the costs of those measures. Students can consider recycling waste in terms of environmental impact and personal principles versus cost of recycling or the cost of training employees.

PAGE 335 EXAM PREP ANSWERS

1. B (p. 317)
2. B (p. 323)
3. D (p. 325)
4. B (p. 325)
5. D (p. 324)
6. B (p. 326)
7. C (p. 332)
8. B (p. 321)
9. C (p. 329)
10. C (p. 317)

Chapter 14
Teacher's Companion

CHAPTER OVERVIEW

Food provides the body with essential nutrients. Proper nutrition helps the body and mind work effectively and efficiently, so it's important for students to learn how to create nutritious menus. This chapter reviews the basics of nutrition, including nutrients, the digestive system, and the problems associated with a poor diet.

CHAPTER OBJECTIVES

14.1 Explain why nutrition is important to the foodservice industry.

14.2 List the six basic types of nutrients found in food.

14.3 Describe how phytochemicals and fiber function in the body.

14.4 Name the types of carbohydrates and fats, and describe their function in the body.

14.5 Identify food sources of carbohydrates and fats.

14.6 Describe cholesterol, and identify its food sources.

14.7 Describe the makeup of proteins and their function in the body.

14.8 Identify food sources of proteins.

14.9 List the functions of vitamins, minerals, and water in the body.

14.10 Identify food sources of vitamins, minerals, and water.

14.11 Explain what food additives are and how they function in food.

14.12 Explain the role of digestion in nutrition and health.

ADVANCE PREPARATION

Review	• Chapter 14, pages 336–355 • Unit case study, "Today's Operational Concerns," pages 312–313
Contact	• Registered dietitian • School foodservice director • Instructors from CTE health careers courses, in disciplines like anatomy or nursing • Chemistry teacher for support with the protein and acid lab • Local nonprofit supporting nutrition-related issues, like Meals on Wheels, local food banks, or homeless shelters

Prepare	• Sample nutrition labels
	• MasterCook recipe bank nutritional analysis
	• Various websites with information on nutrition:
	  • *http://www.eatright.org*
	  • *http://www.eatright.org/resources/for-kids*
	  • *https://www.choosemyplate.gov/supertracker-other-tools*
	  • *http://www.eatrightpro.org/resource/news-center/in-practice/dietetics-in-action/the-rise-of-the-chef-rd*
	  • *https://terpconnect.umd.edu/~nsw/ench485/lab3.htm* (protein and acid lab example)

CHAPTER BREAKDOWN

PAGE 338 INTRODUCTION

Discuss

- What is the difference between diet and nutrition? The students might have opinions about this.
- Why is nutrition important to the restaurant and foodservice industry?

PAGES 338–346 THE IMPORTANCE OF NUTRITION

Reinforce and Review

- No matter how good a food is for the body, if it doesn't taste good, no one will want to eat it.
- Carbohydrates all have similar types of molecules. The same is true for lipids and proteins.
- Vitamins have very different types of molecules. There are many different shapes and structures.
- Vitamins are all in the same category because they help regulate the body but cannot be made by the body.
- Water is used for lubrication, transport, temperature control, chemical reactions, and structure.
- The basic molecular building block of carbohydrates is a molecule of glucose (or a few other types of sugar), which has six carbon atoms along with hydrogen and oxygen.

- Fats provide a lot of energy (calories) and can be stored as body fat. Too much fat in the diet can make a person fat. Too much sugar in the diet can also be stored as fat. Overweight individuals should thus be careful of their fat and sugar intake.
- There are three fatty acids on a typical molecule of dietary fat. These are long chains connected to a backbone, sort of in the shape of an E.
- The fatty acids determine the type of fat: saturated, monounsaturated, or polyunsaturated.
- Oxidation destroys the fat and its flavor. In some cases, oxidation can make the fat unsafe to use and consume.
- Cholesterol is a lipid, but not a fat. Too much cholesterol can form a harmful waxy substance in the arteries.

Discuss

- With an increasing number of families and individuals eating meals from restaurant and foodservice operations, is it the responsibility of the operations to protect their guests from overnutrition? How would this be done?
- What sells well in a restaurant or foodservice operation? Let the students discuss and explore this area for a while.
- How can students keep up with changes in nutrition?
- Where can you get advice on nutrition?

Vocabulary Review

- **Nutrition:** The study of the nutrients in food and how they nourish the body.
- **Nutrients:** Components of food that are needed for the body to function.
- **Fiber:** Substance that promotes digestive health and regularity and is found in plant food such as whole grains, fruits, vegetables, nuts, and legumes. It is the part of the plant that cannot be digested by people; fiber is not absorbed in the intestines and is eliminated through the colon during a bowel movement. High-fiber foods include bran, legumes, fruits, vegetables, and whole grains. The two types of fiber are soluble (dissolves in water) and insoluble (does not dissolve in water).
- **Phytochemicals:** Also known as phytonutrients, these are chemicals that aid the body in fighting or preventing diseases. Phytochemicals can be identified by the color pigment they provide to certain types of food, such as the anthocyanins in blueberries.
- **Calorie:** Common name used for the kilocalorie, which is the unit of measurement for energy in nutrition.
- **Simple carbohydrates:** These carbohydrates contain one or two sugars and have a relatively simple chemical structure. Simple carbohydrates that are used in the kitchen or bakery include white sugar, brown sugar, molasses, and honey. Simple carbohydrates are digested and absorbed quickly and provide a short burst of energy.
- **Glucose:** A very important simple sugar that is the primary source of energy. It is also the only source of energy for the brain and nervous system. Good sources of glucose are fruits, vegetables, and honey.

- **Hormones:** Special chemical messengers produced in the body that regulate certain functions of the body. For instance, a hormone produced in the pancreas, called insulin, allows glucose, or blood sugar, to travel throughout the body for energy use.
- **Insulin:** A hormone produced in the pancreas. It allows glucose, or blood sugar, to travel throughout the body for energy use. Problems with insulin production and blood sugar levels can be symptoms of diabetes or other diseases that put stress on the body, causing weakness and fatigue.
- **Complex carbohydrates:** Carbohydrates that contain long chains that include many glucose molecules. They are found in plant-based foods such as grains, legumes, and vegetables, and they provide a long-lasting source of energy. Complex carbohydrates take longer to digest than simple carbohydrates.
- **Lipids:** Another word for fat; lipids are a group of molecules that includes fats, oils, waxes, steroids, and other compounds.
- **Fat:** Usually refers to both fats and oils, although basic differences exist between the two. Fats are solid at room temperature and often come from animals. Oils are liquid at room temperature and often come from plants. Fat is an essential nutrient with many functions.
- **Saturated fatty acids:** Fats that cannot break down in the body and therefore collect. As saturated fatty acids collect within the body, they can cause health issues.
- **Essential fatty acids:** The few fatty acids that are required for good nutrition. They are used to make substances that regulate vital body functions, such as blood pressure, muscle contraction, blood clotting, and immune responses. Essential fatty acids are also needed for normal growth, healthy skin, and healthy cells.
- **Oxidation:** A chemical process that causes unsaturated fats to spoil. Heat, light, salt, and moisture help speed up oxidation.
- **Cholesterol:** A white, waxy substance that helps the body carry out its many processes. Cholesterol is made in the liver, is an important part of all cell membranes, and is found in large amounts throughout the nervous system. In the body, cholesterol also helps to make substances such as bile acids, vitamin D, and hormones. Cholesterol is a natural component of the body; people do not need it in the food they eat.
- **Trans-fatty acids:** The result of taking a liquid fat and making it solid through a process called hydrogenation. Hydrogenation of fats makes them stay fresh longer and increases the smoking point, which makes these fats suitable for frying. The disadvantage is that trans fats may be more harmful to a person's health than saturated fats in relation to the development of heart disease. Processed foods, especially baked goods, can be sources of trans fat.
- **Hydrogenation:** Process that alters the physical properties of fats to make them stay fresh longer and increase their smoking point, which makes them suitable for frying. The disadvantage of hydrogenation is that it may be more harmful to a person's health than saturated fats in relation to the development of heart disease.
- **Proteins:** A class of nutrients that can supply energy to the body. Proteins are needed to build new cells and repair injured ones, and they provide the building blocks, in the form of amino acids, that the body uses for a variety of things, including muscles, tissues, enzymes, and hormones. Proteins are large, complex molecules that contain long chains of amino acids.

- **Amino acids:** Chemical compounds that have special functions in the body, including supplying nitrogen for growth and maintenance, maintaining fluids, keeping the body from getting too acidic or basic, and acting as transporters when in the form of lipoproteins (molecules combining a lipid and a protein). Twenty amino acids can be found in food. Only nine of them, known as essential amino acids, have to be obtained from food each day; the others can be made by the body.
- **Vegetarian:** Describes a person who does not eat any meat, fish, poultry, or any products derived from those animals.
- **Complete proteins:** These proteins are called complete because they contain all the essential amino acids in the right amount. Good sources of complete proteins are meat, poultry, fish, eggs, and dairy products.
- **Incomplete proteins:** These proteins are called incomplete because they lack one or more of the essential amino acids. Food from plant sources are incomplete proteins.
- **Complementary proteins:** Two or more incomplete protein sources that together provide adequate amounts of all the essential amino acids. Examples of complementary proteins include a peanut butter sandwich, macaroni and cheese, tofu with rice, and beans and tortillas.

Customized Instruction

Learning disabled	Create a graphic organizer with found or created images that show the definitions for the key terms listed below. • **Nutrition:** The study of the nutrients in food and how they nourish the body. • **Nutrients:** Components of food that are needed for the body to function. • **Fiber:** Substance that promotes digestive health and regularity and is found in plant food such as whole grains, fruits, vegetables, nuts, and legumes. It is the part of the plant that cannot be digested by people; fiber is not absorbed in the intestines and is eliminated through the colon during a bowel movement. High-fiber foods include bran, legumes, fruits, vegetables, and whole grains. The two types of fiber are soluble (dissolves in water) and insoluble (does not dissolve in water). • **Phytochemicals:** Also known as phytonutrients, these are chemicals that aid the body in fighting or preventing diseases. Phytochemicals can be identified by the color pigment they provide to certain types of food, such as the anthocyanins in blueberries. • **Calorie:** Common name used for the kilocalorie, which is the unit of measurement for energy in nutrition. • **Simple carbohydrates:** These carbohydrates contain one or two sugars and have a relatively simple chemical structure. Simple carbohydrates that are used in the kitchen or bakery include white sugar, brown sugar, molasses, and honey. Simple carbohydrates are digested and absorbed quickly and provide a short burst of energy.

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Learning disabled *(cont)*	• **Glucose:** A very important simple sugar that is the primary source of energy. It is also the only source of energy for the brain and nervous system. Good sources of glucose are fruits, vegetables, and honey. • **Hormones:** Special chemical messengers produced in the body that regulate certain functions of the body. For instance, a hormone produced in the pancreas, called insulin, allows glucose, or blood sugar, to travel throughout the body for energy use. • **Insulin:** A hormone produced in the pancreas. It allows glucose, or blood sugar, to travel throughout the body for energy use. Problems with insulin production and blood sugar levels can be symptoms of diabetes or other diseases that put stress on the body, causing weakness and fatigue. • **Complex carbohydrates:** Carbohydrates that contain long chains that include many glucose molecules. They are found in plant-based foods such as grains, legumes, and vegetables, and they provide a long-lasting source of energy. Complex carbohydrates take longer to digest than simple carbohydrates. • **Lipids:** Another word for fat; lipids are a group of molecules that includes fats, oils, waxes, steroids, and other compounds. • **Fat:** Usually refers to both fats and oils, although basic differences exist between the two. Fats are solid at room temperature and often come from animals. Oils are liquid at room temperature and often come from plants. Fat is an essential nutrient with many functions. • **Saturated fatty acids:** Fats that cannot break down in the body and therefore collect. As saturated fatty acids collect within the body, they can cause health issues. • **Essential fatty acids:** The few fatty acids that are required for good nutrition. They are used to make substances that regulate vital body functions, such as blood pressure, muscle contraction, blood clotting, and immune responses. Essential fatty acids are also needed for normal growth, healthy skin, and healthy cells. • **Oxidation:** A chemical process that causes unsaturated fats to spoil. Heat, light, salt, and moisture help speed up oxidation. • **Cholesterol:** A white, waxy substance that helps the body carry out its many processes. Cholesterol is made in the liver, is an important part of all cell membranes, and is found in large amounts throughout the nervous system. In the body, cholesterol also helps to make substances such as bile acids, vitamin D, and hormones. Cholesterol is a natural component of the body; people do not need it in the food they eat.

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Learning disabled *(cont)*	• **Trans-fatty acids:** The result of taking a liquid fat and making it solid through a process called hydrogenation. Hydrogenation of fats makes them stay fresh longer and increases the smoking point, which makes these fats suitable for frying. The disadvantage is that trans fats may be more harmful to a person's health than saturated fats in relation to the development of heart disease. Processed foods, especially baked goods, can be sources of trans fat. • **Hydrogenation:** Process that alters the physical properties of fats to make them stay fresh longer and increase their smoking point, which makes them suitable for frying. The disadvantage of hydrogenation is that it may be more harmful to a person's health than saturated fats in relation to the development of heart disease. • **Proteins:** A class of nutrients that can supply energy to the body. Proteins are needed to build new cells and repair injured ones, and they provide the building blocks, in the form of amino acids, that the body uses for a variety of things, including muscles, tissues, enzymes, and hormones. Proteins are large, complex molecules that contain long chains of amino acids. • **Amino acids:** Chemical compounds that have special functions in the body, including supplying nitrogen for growth and maintenance, maintaining fluids, keeping the body from getting too acidic or basic, and acting as transporters when in the form of lipoproteins (molecules combining a lipid and a protein). Twenty amino acids can be found in food. Only nine of them, known as essential amino acids, have to be obtained from food each day; the others can be made by the body. • **Vegetarian:** Describes a person who does not eat any meat, fish, poultry, or any products derived from those animals. • **Complete proteins:** These proteins are called complete because they contain all the essential amino acids in the right amount. Good sources of complete proteins are meat, poultry, fish, eggs, and dairy products. • **Incomplete proteins:** These proteins are called incomplete because they lack one or more of the essential amino acids. Food from plant sources are incomplete proteins. • **Complementary proteins:** Two or more incomplete protein sources that together provide adequate amounts of all the essential amino acids. Examples of complementary proteins include a peanut butter sandwich, macaroni and cheese, tofu with rice, and beans and tortillas.

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Academically gifted	Create a presentation about nutrition and the role it serves in health for elementary students. Use visual aids, videos, coloring books, or stories to teach the information to children. Alternative: This activity can be used universally among the larger class, using small groups with chunked materials to form one narrative of information. Teachers may partner with early childhood development or health career classes to create the presentation, as well as a school foodservice director for additional resources.
ELL	Teacher note: The use of an interactive game or video can serve to show the relationships between the key terms and function in the body. For example, some sites allow students to build a digestive system. Videos can also serve to show the relationship between the words and action. Allow students to direct research that best serves the needs of the classroom. Useful links: • *https://www.brainpop.com/games/buildabodydigestivesystem/* • *http://kidshealth.org/en/kids/digestive-system.html*

Knowledge Check Answers (Page 340)

1. Nutrition is important to the restaurant and foodservice industry because people depend on the restaurant and foodservice operations for some of their meals. (p. 338)
2. • Proteins: structure of tissues, repair, other molecules used by the body like enzymes and some hormones, and energy
   - Carbohydrates: energy for the body to function
   - Fat: energy storage; storage of vitamins A, D, E, and K; cushioning and insulation of the body; some transport; essential fatty acids; satiety
   - Vitamins: molecules that work as catalysts or regulators in body processes
   - Minerals: earth elements that are used in making molecules in the body and also are involved in some reaction
   - Water: the main component of the body (p. 340)
3. Fiber promotes digestive health and regularity. (p. 340)

Knowledge Check Answers (Page 346)

1. Carbohydrates provide energy for the body in the form of glucose that is carried in the bloodstream to the individual cells of the body. (p. 341)
2. Fats carry vitamins A, D, E, and K through the body; cushion the body's vital organs; protect the body from extreme temperatures; provide a reserve supply of energy when the body stores it; and supply chemicals called essential fatty acids. (p. 343)

3. Amino acids are the nitrogen-containing building blocks of proteins. Proteins are polymer molecules made of amino acids. The students might know from prior learning that proteins are made by assembling amino acids according to genetic DNA code. (p. 345)

In-Class Activity: Literacy

Recipes for Nutrition

Oatmeal is a source of soluble fiber, which can help reduce cholesterol levels. Adding more oats to the diet is recommended for individuals at risk.

Have the class work together to collect five recipes that are based on oats or oatmeal.

If possible, try one recipe in class.

In-Class Activity: Science

Protein and Acid Demonstration

Acids will denature protein. "Denature" means to change or alter the nature of something. Using raw egg white (albumen), show the effect of various strengths of acid. Contact the chemistry department for assistance with this. Rehearse this lab.

Determine with the help of the chemistry teacher how to transport and dispense the acid. Be especially careful and use eye, hand, and clothing protection when working with the acids.

Ingredients:

- 4 petri dishes
- pipettes
- 4 raw eggs
- samples of hydrochloric acid
- sulfuric acid
- acetic acid
- ascorbic acid

Instructions:

1. Crack an egg into each Petri dish.
2. Drop a pipette of acid on an egg.
3. Observe the results.

Homework Activity: Writing

Food Journal

Have students begin a food journal and keep it for one week. They should record everything they eat and drink, not just meals. They should include calorie, serving sizes, time of day, motivation for eating, where they were, and whom they were with.

PAGES 346–347 **VITAMINS AND MINERALS**

Reinforce and Review

- Vitamins were discovered because people without a certain vitamin got sick. This is called deficiency. When the vitamin was added, they got better. The requirements for the vitamin were based on the amount required to prevent sickness.
- Too much of a vitamin can also make you sick, which is called toxicity.
- Vitamins can be water soluble and fat soluble.

Discuss

- Where can you get advice on nutrition?
- Who can tell you what vitamins or minerals you might need?

Vocabulary Review

- **Vitamins:** Chemical compounds found in food that are needed for regulating metabolic processes, such as digestion and the absorption of nutrients. Vitamins are essential for life and must be obtained from food, because the human body makes insufficient amounts or, in some cases, none at all. Vitamins help carbohydrates, proteins, fats, and minerals to work properly. The two types of vitamins are water soluble and fat soluble. Water-soluble vitamins mix only with water, and fat-soluble vitamins mix only with fat.
- **Minerals:** Chemical substances that occur naturally in foods and that are important for good health. They are classified as major or trace, according to how much is needed in the diet. Some examples of major minerals are calcium, phosphorus, potassium, sodium, and magnesium. Iron, copper, zinc, and iodine are examples of trace minerals.

Customized Instruction

Learning disabled	Do you take a vitamin? Research several vitamin labels, and compare and contrast what each product offers. What do the vitamins do to help your body? Write a few notes to connect the labels to what each vitamin and mineral does for your body.
Academically gifted	What are the health risks of things like energy drinks, which have some vitamins but also have additional ingredients that can be harmful. Research several labels for various brands, as well as sources that discuss the potential risks of consumption. Create a poster with your research to present to the class.
ELL	Create a graphic organizer to show images of various vitamin sources, how the body processes it, and what function in the body the vitamin helps to support. Teacher note: • *http://www.health.harvard.edu/staying-healthy/listing_of_vitamins*

PAGE 348 **WATER**

Reinforce and Review

- Water is a nutrient.
- Some beverages, like those including caffeine and sugar, actually cause the body to lose water rather than increase it.
- Plain water is a good beverage throughout the day.

Discuss

- What is the role of water in people's diet?
- How much water should a person drink in a day?

Vocabulary Review

- **Water:** An essential nutrient to all forms of life; people cannot live without it. Water that leaves the body through breathing, sweating, etc. must be replenished to maintain normal function.

Customized Instruction

Learning disabled	How much water do you drink a day? Keep a water diary for a week and take notes on the amount of water you drank. Write a short response from your findings. Are you drinking enough water?
Academically gifted	Unsafe water is a major cause of illness and death throughout history and even in the modern world. Choose a topic either in history or currently, and research the issue, causes, and potential actions to fix the problem. For example: • Contaminated water caused the Black Plague during the Middle Ages. • In modern times, areas like Flint, Michigan, have contaminated pipes that cause lead to leach into drinking water. Choose an event that starts with contaminated water, and write a report based on your findings. Teacher note: • *https://www.cdc.gov/plague/transmission/* • *https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water*

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ELL	How does water become safe to drink? Research how water is treated in your community—where it comes from, and the system used to filter and make the water safe to drink from your tap. Create a graphic organizer with images to show the process of water treatment. Teacher note: • *https://www.cdc.gov/healthywater/drinking/public/water_treatment.html*

PAGE 348 **FOOD ADDITIVES**

Reinforce and Review

- Flavorings, colorings, and seasonings are all additives.

Discuss

- What are students' perceptions of food additives?
- What role do additives play?

Vocabulary Review

- **Food additive:** A chemical substance or combination of substances present in food as a result of processing, production, or packaging.

Customized Instruction

Learning disabled	What are additives? Research common additives and their functions in various foods. Teacher note: • *https://www.fda.gov/food/ingredientspackaginglabeling/foodadditivesingredients/ucm094211.htm*
Academically gifted	What is the debate around food additives? Are they good? Bad? Research each side of the debate, and give a presentation to illustrate your findings. Alternative: To use the instruction universally, divide students into two groups to research and collaborate each side of the debate. Then, assign a pro or con side to each group, and allow students to debate. However, students will not know which side they are on until after the research phase, allowing for students to understand the topic from both sides.
ELL	Create a graphic organizer with images that highlight common food additives, and the foods that they can be found in. Keep notes on whether you believe the food additive to be a good thing, or possibly harmful.

Homework Activity: Writing

What's Good for You

Should the government be allowed to decide what fats are used in a restaurant? Why or why not? Research the policies involving dietary regulations, and write a persuasive essay with your opinions.

PAGE 349 **THE DIGESTIVE SYSTEM**

Reinforce and Review

- The body is actually like a giant doughnut with a hole in the middle. The alimentary canal (from entry to exit) is like the doughnut hole.
- Food doesn't actually enter the body until it crosses over from the alimentary canal into the bloodstream and on to the cells. So food in the stomach and intestines hasn't yet been digested or absorbed.
- The process of digestion begins in the mouth and ends in the small intestine. Absorption of water and alcohol begin in the stomach; the rest happens in the small intestine.
- The large intestine is for absorbing more water, and collecting and passing solid wastes.

Discuss

- What is the role of digestion in nutrition and health?

Vocabulary Review

- **Digestion:** The process of breaking down food into its simplest parts so that it can be absorbed. Digestion is carried out by the digestive system, which starts at the mouth and ends at the anus.

Customized Instruction

Learning disabled	Create a poster that highlights the digestive process, using found or created images. Alternative: Students can collaborate to personify each step or organ that has a role in the digestive process, and act out a skit or film a video to present the material.
Academically gifted	What are common diseases linked to poor digestion or problems with digestion? Choose three health issues related to the topic, and write a brief report with your findings, focusing on how the health issue or disease affects the typical digestion process in comparison.
ELL	Create a model, using materials like clay or construction paper, to show how digestion works in the body.

PAGES 349–252 A HEALTHY DIET

Reinforce and Review

- Obesity is one of the greatest health risks in the world right now. Obesity in the United States contributes to many deaths every year. Obesity in children is becoming an epidemic and reduces a child's life expectancy.
- Women are especially vulnerable to osteoporosis as they age and their estrogen production decreases.
- Women are also especially vulnerable to iron-deficiency anemia due to menstrual blood loss. Women can first get anemia, and then after menopause they can get osteoporosis.
- Women can also have very high nutrient demands during pregnancy and lactation.
- Women need to build stores of nutrients during their childhood and teenage years.
- Women need to eat well and exercise from their childhood and teen years onward.
- It would be a disservice to imply that cardiovascular disease, diabetes mellitus, and cancer can be completely avoided with proper lifestyle choices. Genetics can be a factor.

Discuss

- It seems that RDAs, DRIs, and AIs are all the same thing. These guides have developed over years of trying to determine several things:
  - How much of a nutrient is required to prevent a deficiency disease?
  - How much of a nutrient will cause a toxicity reaction?
  - How much do people of different sizes, shapes, genders, and ages differ in their nutrient needs?
  - How much of a nutrient is truly optimal?
- What do you think about childhood obesity? What can be done about it?
- Why is childhood obesity becoming an epidemic? What can you do to prevent it in your own family?
- How can you protect yourself from becoming obese?
- What can obese people do to become healthier?

Vocabulary Review

- **Dietary Reference Intakes (DRIs):** Recommended daily nutrient and energy intake amounts (that is, what a person needs to consume) for healthy people of a particular age range and gender. DRIs are the guides for nutrition and food selection.
- **Recommended Dietary Allowances (RDAs):** Daily nutrient standards established by the U.S. government, providing the average daily intakes that meet the nutrient requirements of nearly all healthy individuals of a particular age and gender group.

- **Adequate Intakes (AIs):** Similar to Recommended Dietary Allowances, Adequate Intakes also identify daily intake levels for healthy people. AIs are typically assigned when scientists do not have enough information to set an RDA.
- ***Dietary Guidelines for Americans:*** A document published jointly by the Department of Health and Human Services and the U.S. Department of Agriculture (USDA) that offers science-based advice for healthy people over the age of two about food choices to promote health and reduce the risk for major chronic diseases. Like the Recommended Dietary Allowances, these dietary guidelines apply to diets eaten over several days, not to single food items or meals.
- **Malnutrition:** A condition that occurs when a body does not get enough nutrients. It can result from not having enough of the right food or from making poor food choices, including eating too much food.
- **Obese:** Refers to a person who is overweight, having a weight that is greater than what is generally considered healthy.
- **Osteoporosis:** A condition in which the bones gradually lose their minerals and become weak and fragile.
- **Iron-deficiency anemia:** Condition describing a lack of iron in a person's blood. It is often caused by eating a diet poor in iron or having problems with absorption.
- **Diabetes mellitus:** A condition in which the body cannot regulate blood sugar properly. It is treatable with diet, physical activity, and medication (usually insulin injections).

Customized Instruction

Learning disabled	How can nutrition play a bigger role in your life? Write a few notes with nutrition-related goals from the information you have learned in this chapter. Alternative: Create a poster for the following health issues, showing what each is, what it can cause, and how it may be prevented. • **Malnutrition:** A condition that occurs when a body does not get enough nutrients. It can result from not having enough of the right food or from making poor food choices, including eating too much food. • **Obese:** Refers to a person who is overweight, having a weight that is greater than what is generally considered healthy. • **Osteoporosis:** A condition in which the bones gradually lose their minerals and become weak and fragile. • **Iron-deficiency anemia:** Condition describing a lack of iron in a person's blood. It is often caused by eating a diet poor in iron or having problems with absorption. • **Diabetes mellitus:** A condition in which the body cannot regulate blood sugar properly. It is treatable with diet, physical activity, and medication (usually insulin injections).

(continued)

Academically gifted	Describe the cause and effect of nutrition-related diseases around the world. For example, in countries with food insecurity, drought, or famine, things like DRIs, RDAs, and AIs may not exist in the same way that they do in America. Choose an event or area that falls prey to certain nutrition-related diseases, perform research, and create a presentation on the issue. Alternative: Create a service-based project for the class to research a nutrition-related issue, like homelessness and hunger, collecting items for a food drive, or another major issue globally, to plan an event to support the cause. For any of the diseases or issues in this section, there are many organizations nationally and worldwide to educate and support. Teacher note: • *https://www.nytimes.com/2017/02/22/world/africa/why-20-million-people-are-on-brink-of-famine-in-a-world-of-plenty.html?_r=0* • *https://www.cdc.gov/obesity/strategies/community.html* • *http://www.mealsonwheelsamerica.org* • *http://nationalhomeless.org/about-us/projects/awareness-week/*
ELL	Create a graphic organizer with images to show the definitions of the key terms from the section, listed below: • **Dietary Reference Intakes (DRIs):** Recommended daily nutrient and energy intake amounts (that is, what a person needs to consume) for healthy people of a particular age range and gender. DRIs are the guides for nutrition and food selection. • **Recommended Dietary Allowances (RDAs):** Daily nutrient standards established by the U.S. government, providing the average daily intakes that meet the nutrient requirements of nearly all healthy individuals of a particular age and gender group. • **Adequate Intakes (AIs):** Similar to Recommended Dietary Allowances, Adequate Intakes also identify daily intake levels for healthy people. AIs are typically assigned when scientists do not have enough information to set an RDA. • ***Dietary Guidelines for Americans:*** A document published jointly by the Department of Health and Human Services and the U.S. Department of Agriculture (USDA) that offers science-based advice for healthy people over the age of two about food choices to promote health and reduce the risk for major chronic diseases. Like the Recommended Dietary Allowances, these dietary guidelines apply to diets eaten over several days, not to single food items or meals. • **Malnutrition:** A condition that occurs when a body does not get enough nutrients. It can result from not having enough of the right food or from making poor food choices, including eating too much food.

(continued)

ELL *(cont)*	• **Obese:** Refers to a person who is overweight, having a weight that is greater than what is generally considered healthy. • **Osteoporosis:** A condition in which the bones gradually lose their minerals and become weak and fragile. • **Iron-deficiency anemia:** Condition describing a lack of iron in a person's blood. It is often caused by eating a diet poor in iron or having problems with absorption. • **Diabetes mellitus:** A condition in which the body cannot regulate blood sugar properly. It is treatable with diet, physical activity, and medication (usually insulin injections).

Knowledge Check Answers (Page 352)

1. Vitamins and minerals help in growth, reproduction, and the operations and maintenance of the body. (p. 346)
2. Water is the major component of the body and gives structure, provides lubrication, and helps with reactions and transport. (p. 348)
3. Food additives improve color and texture; retain nutritional value; prevent spoilage; and extend shelf life. (p. 348)
4. Digestion breaks down food into its simplest form. (p. 349)
5. Poor diet can lead to malnutrition, obesity, osteoporosis, iron-deficiency anemia, diabetes mellitus, and cancer. (pp. 350–351)

In-Class Activity: Math

BMI Calculation

$$\text{BMI} = \frac{\text{mass (lb)} \times 703}{(\text{height(in)})2}$$

This equation is used to calculate body mass index (BMI), an evaluation of weight for height. Have students use this equation to determine their own BMIs.

A BMI over 25 (approximately) is considered overweight. A BMI over 30 (approximately) is considered obese.

Have the students evaluate their status, if this activity fits the needs of your classroom. The BMI does not calculate things like muscle mass or density. Research alternate methods, if necessary.

PAGE 345 CASE STUDY FOLLOW-UP ANSWERS: "TODAY'S OPERATIONAL CONCERNS"

1. Each student will have ideas on this. They could include using fresh fruits, whole grains, and lower-fat options. A vegetarian diet is associated with a lower risk of obesity, heart disease, diabetes, and stroke.
2. Healthy diets reduce the risk of cancer, heart-related diseases, stroke, and diabetes. A healthy diet also improves a person's mood, boosts energy, and increases longevity.

PAGE 354 CHAPTER ACTIVITIES ANSWERS

- **Functions of Fat and Carbohydrates:** Students should refer back to pages 342 and 344. Saturated fatty acids are fats that cannot break down in the body and therefore collect. Polyunsaturated and monounsaturated fats are healthier and are liquid at room temperature. Simple carbohydrates contain one or two sugars. Simple carbohydrates are digested and absorbed quickly and provide a short burst of energy. Complex carbohydrates provide long-lasting energy but take longer to digest than simple carbohydrates.
- **Disease Prevention:** Students should research one of the illnesses using reliable sources. Have students cite the sources they use. Students should refer back to pages 350–352.
- **Find the Fat:** Students should use the USDA National Nutrient Database for this activity.
  - *https://ndb.nal.usda.gov/ndb/search/list*
  - *https://ndb.nal.usda.gov/ndb/nutrients/index*

Food Item	Calories	Fat
6 oz fried chicken breast	505	32 grams
8 oz grilled salmon	415	24 grams
1 cup vanilla ice cream	290	16 grams

- **Nutrient Jigsaw:** The information in the chapter might be enough to create this presentation. If not, have students use the American Diabetic Association website, the USDA website, or other reliable sources. Have students cite the sources they use. Refer to pages 349–350.
- **Veggie Options:** Students will need to do online research to create two vegetarian meals that provide adequate carbohydrates, lipids, and proteins.
- **Finding Nutrition:** The *Dietary Guidelines for America* offers science-based advice for healthy people over the age of two about food choices to promote health and reduce risk for major chronic diseases, including the recommended dietary allowances.

PAGE 355 EXAM PREP ANSWERS

1. D (p. 341)
2. C (p. 345)
3. C (p. 346)
4. B (p. 348)
5. D (p. 349)
6. B (p. 340)
7. B (p. 344)
8. D (p. 345)
9. D (p. 347)
10. B (p. 349)

Chapter 15
Teacher's Companion

CHAPTER OVERVIEW

This chapter explores the relationship between cooking and nutrition. This chapter reviews food preparation, making menus more healthful, reducing excessive fats, and types of produce from a grower's perspective.

CHAPTER OBJECTIVES

15.1 Describe a healthy diet and the reasons to follow one.

15.2 Use the *Dietary Guidelines for Americans* and Choose MyPlate to plan meals.

15.3 Describe the three major vegetarian diets.

15.4 List and describe techniques for food preparation that preserve nutrients.

15.5 Suggest ways to make menus and recipes more healthful.

15.6 List and define recent developments in food production that may affect nutrition.

ADVANCE PREPARATION

Review	• Chapter 15, pages 356–377 • Unit case study, "Today's Operational Concerns," pages 312–313
Contact	• Registered dietitian • Organic farmer • Manager/chef at a vegetarian or organic restaurant • Certified Dietary Manager from a local nursing home or hospital • School foodservice director to discuss the role of nutrition in menu planning
Prepare	• Different types of menus, if possible those that include a range of diets and nutritional information

CHAPTER BREAKDOWN

PAGE 358 INTRODUCTION

Discuss

- What makes a balanced diet? How does that differ from one person to another?
- How can gustatory pleasure be combined with proper nutrition? Does healthy food always have to taste bad?
- Why is the government involved in nutrition and public health? Should it be?

PAGES 358–361 HEALTHY DIETS

Reinforce and Review

- A healthy diet emphasizes produce and low-fat dairy and protein foods, while de-emphasizing saturated fats, trans fats, cholesterol, salt, and added sugars.
- Nutrition professionals teach people about and help them maintain a healthy diet using Dietary Reference Intakes as guides for nutrition and food selection.
- Two important Dietary Reference Intakes are the Recommended Daily Allowances and Adequate Intakes, both of which are established by the federal government.
- The *Dietary Guidelines for Americans* presents dietary recommendations for healthy people and establishes the basis for federal food and nutrition programs. Updated every five years, the *Dietary Guidelines for Americans* reflect evolving scientific knowledge.
- Video: Choose MyPlate. For a video on the elements of the Choose MyPlate guidelines, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Why do Dietary Reference Intakes provide nutrition guides for healthy people only? How does one's physical condition affect one's dietary needs?

Vocabulary Review

- **Choose MyPlate:** Food guide of the U.S. Department of Agriculture (USDA) that serves as a tool to help people put dietary guidelines into practice by translating the RDAs (Recommended Dietary Allowances) and dietary guidelines into the kinds and amounts of food to eat each day. MyPlate uses a place setting to show the amounts of each type of food that should be on your plate for a meal.
- **Discretionary calorie allowance:** The remaining amount of calories in a food intake pattern after accounting for the calories needed from all food groups.

- **Weight and calories:** Part of the emphasis of the USDA's Choose MyPlate that focuses on weight management and types of calories when choosing foods.
- **Physical activity:** Part of the emphasis of the USDA's Choose MyPlate that focuses on the recommended amount of physical activity for health and resources for increasing a person's amount of physical activity.

Customized Instruction

Learning disabled	Do you think food can be medicine? Research this question, and write a few notes on your findings.
Academically gifted	Research the history of the tools created by the USDA for translating the RDAs. What has changed over the past decades? Write a summary of your research, creating a visual timeline of various tools, with Choose MyPlate as the most recent example.
ELL	Using the following passage from the text, create a visual aid that shows what a healthy diet does, using the bullet points as the framework. What is a healthy diet? According to the *Dietary Guidelines for Americans,* published by the U.S. Department of Health and Human Services (HHS) and the U.S. Department of Agriculture (USDA), a healthy diet does the following: • Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products • Includes lean meats, poultry, fish, beans, eggs, and nuts • Is low in saturated fats (less than 10 percent of calories per day), trans fats (less than 1 percent of calories per day), cholesterol (less than 300 mg per day), salt (less than 2,300 mg of sodium), and added sugars (less than 10 percent of calories per day)

Homework Activity: Math

You Are What You Eat

For three days, keep a log of everything you eat and drink. Track what it is, what ingredients it contains, and how much of it you eat. Use a conversion tool (available online and in book form) to determine how many calories you consume each day, as well as how many grams of protein, carbohydrate, and fat you eat.

Without doing any further research, do you think that this diet adequately met your nutritional needs for the three days? What do you think you could be doing better or worse? Were these three days representative of your normal eating habits, or was there a significant change in your diet?

Keep your results for reference later in the chapter.

Homework Activity: Science

Fat City

Fat has a bad reputation, but it is actually a nutrient that is required for your body to function properly.

Research the pros and cons of fat consumption. What health benefits does it offer? What are the effects of not consuming fat? On the other hand, how can consuming fat adversely affect your health? What problems can overconsumption cause? Describe your findings in a one-page report.

PAGES 361–362 **VEGETARIAN DIETS**

Reinforce and Review

- People choose to eat vegetarian diets for a number of reasons, including religious and ethical beliefs, concern for the environment or for animals, economic factors, and health considerations.
- A vegetarian consumes no meat, fish, or poultry products. Subcategories include vegans, lacto-vegetarians, ovo-vegetarians, and lacto-ovo vegetarians.
- Most vegetarian diets tend to be healthier than the traditional American diet, since plant-based foods can meet almost all nutritional requirements.

Discuss

- Are any students in the class vegetarians or vegans? How might this affect their nutritional needs? How can it affect a teen's social life?
- Is following a healthy vegetarian or vegan diet more or less expensive than eating a diet that contains animal products? Is it more time-consuming?
- Does maintaining a vegetarian or vegan diet relate to environmental issues, such as climate change? What economic, societal, or environmental effects would result if the global population adopted a vegan diet?

Vocabulary Review

- **Vegetarian:** Person who consumes no meat, fish, or poultry products.
- **Vegans:** People who consume no meat, fish, poultry, or any products derived from animals, such as dairy.
- **Ovo-vegetarians:** Vegetarians who eat eggs but not dairy products.
- **Lacto-vegetarians:** Vegetarians who consume dairy products.
- **Lacto-ovo vegetarians:** Vegetarians who eat dairy products and eggs.
- **Pescatarians:** Vegetarians who eat fish.

Customized Instruction

Learning disabled	Research famous people who publicly promote the different types of diets listed below. For example, Beyoncé promotes a vegan diet. Make a list of the diets and different famous people who have chosen them for their lifestyles. • **Vegetarian:** Person who consumes no meat, fish, or poultry products. • **Vegans:** People who consume no meat, fish, poultry, or any products derived from animals, such as dairy. • **Ovo-vegetarians:** Vegetarians who eat eggs but not dairy products. • **Lacto-vegetarians:** Vegetarians who consume dairy products. • **Lacto-ovo vegetarians:** Vegetarians who eat dairy products and eggs. • **Pescatarians:** Vegetarians who eat fish.
Academically gifted	What other diets are popular in the modern world? Paleo? Low-carb? Macrobiotic? Choose several diet trends to research, and write a response comparing the pros and cons of each, in contrast to the diets listed in this section.
ELL	Create a graphic organizer to show what the various diets listed below look like, using images. **Vegetarian:** Person who consumes no meat, fish, or poultry products. **Vegans:** People who consume no meat, fish, poultry, or any products derived from animals, such as dairy. **Ovo-vegetarians:** Vegetarians who eat eggs but not dairy products. **Lacto-vegetarians:** Vegetarians who consume dairy products. **Lacto-ovo vegetarians:** Vegetarians who eat dairy products and eggs. **Pescatarians:** Vegetarians who eat fish.

In-Class Activity: Literacy

Vegetarian Menu

Have students work in pairs to develop a vegetarian menu that provides adequate protein and iron. Choose lacto-vegetarian, ovo-vegetarian, lacto-ovo vegetarian, or vegan.

PAGES 362–365 **FOOD PREPARATION TECHNIQUES**

Reinforce and Review

- Menu planning, recipe selection, and purchasing decisions all grow out of a commitment to good nutrition choices.
- Water and oil can dissolve vitamins and minerals out of foods.

- Soaking foods in water for long periods and then discarding the water can result in lost nutrients.
- Protein isn't easily destroyed by cooking.
- Meat, fish, and poultry are usually consumed for protein nutrition.
- Proper cooking benefits both taste and nutrition.
- Vitamin C is best obtained from fresh, raw fruits and vegetables. Citrus fruits are the best source of vitamin C, but other fruits and vegetables have vitamin C.
- Color is a good indication of what is happening with cooked foods. If the color is going dull, nutrients are probably being lost as well.
- Hold foods only for short periods of time, while quality can be maintained.
- Essential Skills: Batch Cooking for Vegetables lists the steps for batch cooking vegetables.

Discuss

- Is the goal to eat for sensory experience, or to eat for nutrition? Are the two mutually exclusive? Have students debate, give ideas, make suggestions, share experiences, and so on.
- Is overcooking ever a desirable culinary strategy?

Vocabulary Review

- **Batch cooking:** The process of reheating or finishing a small batch of food, as needed, or preparing a small amount of food several times during a service period, so that a fresh supply of cooked items is always available. This process improves the nutritional value, flavor, color, and texture of food.

Customized Instruction

Learning disabled	Make a list of items that you think are best batch cooked. Why? Which items should not be batch cooked? Write notes to explain the list. Make a graphic organizer with images or videos to show how to keep foods safe and healthy throughout the flow of food, from purchasing to holding.
Academically gifted	Research common diets for seniors in long-term care, or nursing homes, that reflect changing the texture of the food. For example, some diets require puréeing or grinding food, according to the ability to chew or swallow. Create a presentation with your findings, including images to show the different textures, and examples of good and bad platings or presentations.

(continued)

Academically gifted ***(cont)***	Teacher note: For more information on dysphagia diets, textures, and thickened liquids, direct the search to websites using "dysphagia" as the search term. Useful link: *http://iddsi.org* Some descriptions may include: purée, ground, chopped, finger foods, and/or regular. The Certified Dietary Manager can provide more guidance on the topic as well, if it is possible to invite a CDM to speak to the class.
ELL	Make a graphic organizer to show the steps in the batch cooking process for vegetables, using the steps listed on page 365 in the Essential Skills feature. Make a graphic organizer with images or videos to show how to keep foods safe and healthy throughout the flow of food, from purchasing to holding.

Knowledge Check Answers (Page 365)

1. Different types of vegetarian diets include vegetarian, vegan, lacto-vegetarian, ovo-vegetarian, and lacto-ovo vegetarian. (p. 361)
2. Batch cooking prevents the food from being held too long and losing nutrients. (p. 365)

PAGES 366–371 **MAKING MENUS MORE HEALTHFUL**

Reinforce and Review

- Fat is not always visible in a soup, sauce, or gravy. In fact, if properly made, the fat will be invisible.
- Fats and oils will pool on the top of sauces, soups, and gravies if they are poorly made with roux.
- Cream is very high in fat, so when used as an ingredient, fat is added to a dish.
- Some alternatives can reduce fat while maintaining the character of the dish.
- Experiment with different thickeners to see the result. If this is not possible, smaller portions can help reduce the total fat of the meal.
- Essential Skills: Healthful Modifications in Baking describes how to bake more healthfully.
- Essential Skills: Reducing Fat in Soups, Sauces, and Gravies describes how to reduce the fat content in soups, sauces, and gravies.
- Essential Skills: Healthful Modifications for Meat provides healthy modifications for meats.
- Essential Skills: Healthful Modifications for Seafood provides healthy modifications for seafood.
- Essential Skills: Healthful Modifications for Vegetables provides healthy modifications for vegetables.
- Essential Skills: Healthful Modifications for Desserts provides healthy modifications for desserts.
- Essential Skills: Healthful Modifications for Garnishes provides healthy modifications for garnishes.

Discuss

- What difference does portion size make?
- Do you contemplate the implications of long-term nutrition decisions when you are looking in the refrigerator for a snack?

Vocabulary Review

- **Portion control:** Refers to controlling the quantity of particular foods by using appropriately sized servings.

Customized Instruction

Learning disabled	For each of the following Essential Skills features, create a graphic organizer with images to show the actions involved in each modification. • Essential Skills: Healthful Modifications in Baking describes how to bake more healthfully. • Essential Skills: Reducing Fats in Soups, Sauces, and Gravies describes how to reduce the fat content in soups, sauces, and gravies. • Essential Skills: Healthful Modifications for Meat provides healthy modifications for meats. • Essential Skills: Healthful Modifications for Seafood provides healthy modifications for seafood. • Essential Skills: Healthful Modifications for Vegetables provides healthy modification for vegetables. • Essential Skills: Healthful Modifications for Desserts provides healthy modifications for desserts. • Essential Skills: Healthful Modifications for Garnishes provides healthy modifications for garnishes.
Academically gifted	**About Eating Healthy** In 2015, 71 percent of adults were trying to eat healthier at restaurants than two years before. Restaurants are offering more healthy choices on their menus by including offerings that are gluten-free, low calorie, low sodium, and low-fat. How would a restaurant know to provide modifications to make certain menu items more healthy? Design a survey for customers to complete based on a menu from your favorite restaurant, asking for feedback on various dishes. Can dishes be modified? Can portions play a role? Assume the role of the restaurant operator trying to give the customers more healthful options. Include a brief report explaining the survey and possible suggestions to modify dishes.

(continued)

ELL	Create posters with images or short videos to show how to make healthy modifications to foods, using the Essential Skills features found below. • Essential Skills: Healthful Modifications in Baking describes how to bake more healthfully. • Essential Skills: Reducing Fats in Soups, Sauces, and Gravies describes how to reduce the fat content in soups, sauces, and gravies. • Essential Skills: Healthful Modifications for Meat provides healthy modifications for meats. • Essential Skills: Healthful Modifications for Seafood provides healthy modifications for seafood. • Essential Skills: Healthful Modifications for Vegetables provides healthy modification for vegetables. • Essential Skills: Healthful Modifications for Desserts provides healthy modifications for desserts. • Essential Skills: Healthful Modifications for Garnishes provides healthy modifications for garnishes.

In-Class Activity: Physical

Salt Tasting

Present students with an opportunity to taste several different varieties of salts. Have students rate the taste on "saltiness." Which salt seems the most "salty"?

PAGES 371–374 **FOOD PRODUCTION ISSUES**

Reinforce and Review

- The NOP develops and administers national production, handling, and labeling standards for organic agriculture products.
- There are many reasons to make philosophical choices about foods and processes.

Discuss

- Do students understand the nature of scientific studies, like the Alar studies?
- Rat studies deal with experimentation and trials. The results deal with risks and probabilities. The results of rat research are published, and the connection between rats and humans is suggested by the research.
- Remind students that research is not absolute, but trends can be seen over time in most cases.

Vocabulary Review

- **Pesticides:** Chemicals that kill insects and other plant pests.
- **Herbicides:** Weed killers.
- **Irradiation:** The treatment of foods, such as meats and vegetables, with low-dose radiation.
- **Hormones:** Chemical substances often injected or placed in the feed of animals to make them grow.
- **Antibiotics:** Medicines that prevent infections.
- **GMOs (genetically modified organisms):** Plants or animals whose genetic makeup has been changed.
- **Conventional:** Refers to products grown normally using approved USDA and FDA agricultural methods. The methods allow the use of certain fertilizers, pesticides, hormones, and drugs that are recognized as safe. Most of the food in the supermarket and from restaurant and foodservice suppliers comes from conventional producers.
- **Organic:** Refers to products that have been produced without pesticides or synthetic fertilizers, often in a way in which soil and water are conserved. Animals do not receive antibiotics or growth hormones.
- **Certified organic:** Refers to products that meet the requirements of their certifying organization. In the United States, the National Organic Program of the USDA certifies products as "100 percent organic," "organic" (95 percent organic), or "made with organic ingredients" (70 percent organic). While all food items are technically "organic" as far as their chemistry is concerned, the "certified organic" name applies to farming and processing techniques that are simple, nontoxic, and sustainable. If a label is USDA "certified organic," the product meets these standards.
- **Local:** Refers to products made by local producers, which can be conventional or organic.
- **Natural:** A term that is legally meaningless when applied to food. Food products labeled as "natural" may or may not have any organic ingredients or processing.

Customized Instruction

Learning disabled	Create a word wall or graphic organizer to use images to define the key terms found below. • **Pesticides:** Chemicals that kill insects and other plant pests. • **Herbicides:** Weed killers. • **Irradiation:** The treatment of foods, such as meats and vegetables, with low-dose radiation. • **Hormones:** Chemical substances often injected or placed in the feed of animals to make them grow. • **Antibiotics:** Medicines that prevent infections. • **GMOs (genetically modified organisms):** Plants or animals whose genetic makeup has been changed.

(continued)

Learning disabled *(cont)*	• **Conventional:** Refers to products grown normally using approved USDA and FDA agricultural methods. The methods allow the use of certain fertilizers, pesticides, hormones, and drugs that are recognized as safe. Most of the food in the supermarket and from restaurant and foodservice suppliers comes from conventional producers. • **Organic:** Refers to products that have been produced without pesticides or synthetic fertilizers, often in a way in which soil and water are conserved. Animals do not receive antibiotics or growth hormones. • **Certified organic:** Refers to products that meet the requirements of their certifying organization. In the United States, the National Organic Program of the USDA certifies products as "100 percent organic," "organic" (95 percent organic), or "made with organic ingredients" (70 percent organic). While all food items are technically "organic" as far as their chemistry is concerned, the "certified organic" name applies to farming and processing techniques that are simple, nontoxic, and sustainable. If a label is USDA "certified organic," the product meets these standards. • **Local:** Refers to products made by local producers, which can be conventional or organic. • **Natural:** A term that is legally meaningless when applied to food. Food products labeled as "natural" may or may not have any organic ingredients or processing.
Academically gifted	Research the role of irradiation in foods. Describe the process and how it relates to food safety. What are the pros and cons? Write a summary of your findings.
ELL	Perform research at a local market or grocery store. Find as many labels as possible including the key terms listed below, and take a photo of each. Then, create a graphic organizer with the photos to match the terms with the definitions, listed below. Include additional images to help show the actions in each definition. • **Pesticides:** Chemicals that kill insects and other plant pests. • **Herbicides:** Weed killers. • **Irradiation:** The treatment of foods, such as meats and vegetables, with low-dose radiation. • **Hormones:** Chemical substances often injected or placed in the feed of animals to make them grow. • **Antibiotics:** Medicines that prevent infections. • **GMOs (genetically modified organisms):** Plants or animals whose genetic makeup has been changed.

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ELL *(cont)*	• **Conventional:** Refers to products grown normally using approved USDA and FDA agricultural methods. The methods allow the use of certain fertilizers, pesticides, hormones, and drugs that are recognized as safe. Most of the food in the supermarket and from restaurant and foodservice suppliers comes from conventional producers. • **Organic:** Refers to products that have been produced without pesticides or synthetic fertilizers, often in a way in which soil and water are conserved. Animals do not receive antibiotics or growth hormones. • **Certified organic:** Refers to products that meet the requirements of their certifying organization. In the United States, the National Organic Program of the USDA certifies products as "100 percent organic," "organic" (95 percent organic), or "made with organic ingredients" (70 percent organic). While all food items are technically "organic" as far as their chemistry is concerned, the "certified organic" name applies to farming and processing techniques that are simple, nontoxic, and sustainable. If a label is USDA "certified organic," the product meets these standards. • **Local:** Refers to products made by local producers, which can be conventional or organic. • **Natural:** A term that is legally meaningless when applied to food. Food products labeled as "natural" may or may not have any organic ingredients or processing.

Knowledge Check Answers (Page 374)

1. Cooking in stock, substituting applesauce for oil, reducing butter in sauces, substituting a starch slurry for roux (p. 367)
2. Pesticides, herbicides, hormones, antibiotics, GMOs (p. 371)

PAGE 375 CASE STUDY FOLLOW-UP ANSWERS: "TODAY'S OPERATIONAL CONCERNS"

1. Students should refer back to pages 359–360. There are three ways restaurant and foodservice professionals can use Choose MyPlate for specific guidance: as a guide to the appropriate serving sizes for the various food groups, to evaluate portion sizes, and to provide a more balanced menu.
2. Student answers will vary. Students will need to research and find three different vegetarian dishes. Some vegetarian recipes include veggie burgers, eggplant parmigiana, spinach quiche, and vegetable lasagna. Certain dishes can be designated as vegetarian, vegan, heart-healthy, etc.

PAGE 376 CHAPTER ACTIVITIES ANSWERS

- **What's a Vegetarian?:** Students should refer back to page 361 to find the list of vegetarian diets. A vegetarian is an individual who chooses to consume only vegetable and plant foods. A lacto-vegetarian is a vegetarian that also consumes milk and dairy products. A lacto-ovo vegetarian is a vegetarian who will include dairy foods and eggs. A vegan is a vegetarian who will not use or consume animal products.
- **What's in Your Food?:** Students will need to go to *www.ChooseMyPlate.gov* to complete this activity. The following is an example:

	Calories	Fat	Saturated Fat	Protein	Fiber	Carbohydrates
1 cup spinach	7	0.12 g	0.019 g	0.86 g	0.7 g	1 g
4 oz salmon	166	6.72 g	1.42 g	25.52 g	0 g	6.72 g
1 cup penne pasta	220	1.29 g	0.25 g	8 g	0.5 g	42.95 g

- **The Recommended Serving:** Student responses will vary. Students should identify a specific restaurant and a specific demographic, and then go to *www.ChooseMyPlate.gov*.
- **Watch Out:** Students will need a restaurant menu. Students should conduct online research on each menu item to see if it contains any pesticides, herbicides, GMOs, or hormones.
- **House Specials:** Student answers will vary, but be sure the different types of vegetarian recipes reflect the type of vegetarian diet. The following is an example:

Diet	Appetizer	Salad	Entrée	Dessert
Vegetarian	Tomato and avocado toast	Raw kale and Brussels sprouts with tahini-maple dressing	Vegetable lasagna	Lemon madeleines
Low-fat	Baked zucchini chips	Summer greens and strawberries with poppy seed dressing	Grilled chicken and vegetables	Fresh fruit compote
High-fiber	Black bean hummus	Salad niçoise	Fish tacos with crunchy corn salsa	Chocolate chunk cookie tart
Organic	Squash fritters	Wedge salad with garlic and yogurt dressing	Roast chicken with vegetables	Strawberry sherbet

- **Make It Better:** Student answers will vary, but students will need to go to *www.ChooseMyPlate.gov* to complete this activity. Some ideas of foods that can be added to make a menu more healthy include goat cheese, coconut, lemon, tofu, mango, artichokes, spaghetti squash, apples, rhubarb, beet greens, endive, snap peas, corn, asparagus, figs, basil, sunflower seeds, parsley, and mint.

PAGE 377

EXAM PREP ANSWERS

1. D (p. 361)
2. D (p. 361)
3. C (p. 358)
4. A (p. 366)
5. A (p. 365)
6. C (p. 364)
7. D (p. 363)
8. B (p. 373)
9. A (p. 371)
10. B. (p. 371)

Chapter 16
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers the grades and cuts of meat, as well as purchasing, storing, and cooking meat.

CHAPTER OBJECTIVES

16.1 Outline the federal grading systems for meat.

16.2 Identify receiving and storage procedures for meat.

16.3 Apply basic techniques for cooking meat.

16.4 Match various cooking methods with different forms of meat.

ADVANCE PREPARATION

Review	• Chapter 16, pages 382–403 • Unit case study, "Meat, Poultry, and Seafood," pages 380–381
Contact	• A butcher
Prepare	• Diagrams of meat cuts • Appropriate cooking equipment

CHAPTER BREAKDOWN

PAGE 384 **INTRODUCTION**

Discuss

- Cuts of meat are often the focal point of a meal.
- Meat is a significant protein source.

Vocabulary Review

- **Meat:** Term used to describe beef, veal, lamb, mutton, or pork.

PAGES 384–385 **MEAT INSPECTION AND GRADING**

Reinforce and Review

- Meat grades are determined by the USDA standards.
- Inspection stamps are only awarded to safe, wholesome meat.
- The grades help determine the quality, tenderness, and flavor.
- Cooking methods are often suggested by the grade as well.

Discuss

- What are the grades of meat?
- Is beef (or other meat) an important part of one's diet? Why or why not?

Vocabulary Review

- **Quality grade:** In regard to meat, the quality grade measures the flavor characteristics of meat products. The USDA evaluates meat for traits that indicate its tenderness, juiciness, and flavor. Quality grades for beef, lamb, and veal can include Prime, Choice, Select, Standard, Commercial, Utility, Cutter, Cull, or Canner. The USDA only inspects pork for wholesomeness and grades it only for yield.
- **Yield grade:** Measures the proportion of edible or usable meat after it has been trimmed of bones or fat.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the different cuts of meat: beef, veal, lamb, mutton, or pork. Create a graphic organizer with images to show the quality grades for beef, lamb, and veal, including Prime, Choice, Select, Standard, Commercial, Utility, Cutter, Cull, or Canner. Pair the images with the resulting products from each grade, like canner for pet food.
Academically gifted	Research the job of a meat grader. What type of education and training is involved? Write a response with your findings. Alternative: What is meat science? Research this discipline and write a report with your findings.
ELL	Research how a butcher performs a yield grade using online resources such as images or videos. Create a graphic organizer with images to the steps to perform a yield grade.

In-Class Activity: Physical

Pin the Sirloin on the Bovine

Make large paper cutouts of the various primal cuts of beef. Divide the students into two groups. Play a game to assemble the entire carcass. Each team gets a chance to put a cut on the board in the correct place. If they do this incorrectly, the other team has a turn. When the students are done, there should be a reconstructed bovine carcass model on the board.

Teacher note: *https://www.angus.org/pub/beefchart.pdf*

PAGES 386–389 **CUTS OF MEAT**

Reinforce and Review

- Collagen is a type of protein molecule. It is found in fascia, the thin covering over a muscle. It is also found between muscle fiber bundles.
- Elastin is found in ligaments and tendons and is fibrous and tough. It is a protein molecule that is cross-linked and insoluble in water. Elastin is sometimes called "gristle." It is inedible. It is not poisonous, but it is unchewable.
- Cuts of meat come from various places on the carcass. An animal carcass has primal cuts that work well for flavor and cooking.
- A butterfly cut opens like a book, or like the wings of a butterfly. This cut can make a small, tender cut of meat have more surface area.
- Silverskin (the tough elastin connective tissue fascia of muscles of a carcass) and gristle (the tough elastin connective tissue cartilage) should be sliced off, as it is tough.
- Game meat can have very strongly flavored offal, so be careful to taste-test before using.
- Essential Skills: Trimming and Butterflying a Tenderloin describes how to trim and butterfly a tenderloin.

Discuss

- Why is meat aged under refrigeration?
- Which cut of meat is most tender?
- What is the name of the meat cut made in the initial butchering process? What happens after that step?

Vocabulary Review

- **Aging:** The process after meat is cut from the carcass of the animal, where butchers hang the meat to help lengthen the muscle fibers and increase its tenderness. Butchers must age meat between 48 and 72 hours to allow the muscles to relax. When meat is aged for longer periods of time, it continues to darken and the flavor improves.
- **Primal cuts:** The pieces of meat first separated from the carcass of an animal when it is butchered.

- **Fabrication:** The process of butchering primal cuts of meat into usable portions, such as roasts or steaks.
- **Retail cuts:** Cuts of meat that are ready for sale; they can be primal cuts or fabricated portions.
- **Butterflying:** To cut a piece of meat lengthwise nearly in half so that it opens out and lies flat.
- **Medallions:** Cuts of meat that are small, round pieces molded by wrapping them in cheesecloth.
- **Noisettes:** Small, usually round portions of meat (also the French word for hazelnuts). Sometimes the terms "medallions" and "noisettes" are both used to describe small, boneless, tender cuts of meat.
- **Scallops:** Thin, boneless cuts of meat that are lightly pounded.
- ***Emincé*:** Thin strips of meat used for sautéing.
- **Offal:** Organ meat from hogs, cattle, or sheep, including sweetbreads (thymus glands), liver, kidney, tripe (muscular stomach lining), heart, and brain.
- **Game meat:** Meat from animals that are not raised domestically, including deer, wild boar, moose, and elk.

Customized Instruction

Learning disabled	Create a word wall with images to match the key term definitions, listed below. • **Primal cuts:** The pieces of meat first separated from the carcass of an animal when it is butchered. • **Aging:** Process after meat is cut from the carcass of the animal, where butchers hang the meat to help lengthen the muscle fibers and increase its tenderness. Butchers must age meat between 48 and 72 hours to allow the muscles to relax. When meat is aged for longer periods of time, it continues to darken and the flavor improves. • **Fabrication:** The process of butchering primal cuts of meat into usable portions, such as roasts or steaks. • **Retail cuts:** Cuts of meat that are ready for sale; they can be primal cuts or fabricated portions. • **Butterflying:** To cut a piece of meat lengthwise nearly in half so that it opens out and lies flat. • **Medallions:** Cuts of meat that are small, round pieces molded by wrapping them in cheesecloth. • **Noisettes:** Small, usually round portions of meat (also the French word for hazelnuts). Sometimes the terms "medallions" and "noisettes" are both used to describe small, boneless, tender cuts of meat. • **Scallops:** Thin, boneless cuts of meat that are lightly pounded. • ***Emincé*:** Thin strips of meat used for sautéing.

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Learning disabled *(cont)*	• **Offal:** Organ meat from hogs, cattle, or sheep, including sweetbreads (thymus glands), liver, kidney, tripe (muscular stomach lining), heart, and brain. • **Game meat:** Meat from animals that are not raised domestically, including deer, wild boar, moose, and elk.
Academically gifted	Research how to field dress game including deer, wild boar, moose, and elk. Create a presentation on how to perform a field dressing, how to keep the meat safe from foodborne illness, and how to process the carcass into usable product. Include information on how hunters are permitted to hunt game, and what types of regulations exist on hunting seasons in various regions of America. Alternative: Research the controversies surrounding exotic animal hunting, often referred to as trophy hunting, in the United States and internationally. Write a report with your findings, included well-balanced information for and against trophy hunting. Teacher note: • *http://www.conservationmagazine.org/2014/01/can-trophy-hunting-reconciled-conservation/* • *https://www.idausa.org/campaign/wild-animals-and-habitats/hunting/*
ELL	Use online resources to find images or videos to show the action for the key terms that follow. Create a graphic organizer with screenshots or created images for each, along with notes describing what you saw. • **Primal cuts:** The pieces of meat first separated from the carcass of an animal when it is butchered. • **Aging:** Process after meat is cut from the carcass of the animal, where butchers hang the meat to help lengthen the muscle fibers and increase its tenderness. Butchers must age meat between 48 and 72 hours to allow the muscles to relax. When meat is aged for longer periods of time, it continues to darken and the flavor improves. • **Fabrication:** The process of butchering primal cuts of meat into usable portions, such as roasts or steaks. • **Retail cuts:** Cuts of meat that are ready for sale; they can be primal cuts or fabricated portions. • **Butterflying:** To cut a piece of meat lengthwise nearly in half so that it opens out and lies flat. • **Medallions:** Cuts of meat that are small, round pieces molded by wrapping them in cheesecloth. • **Noisettes:** Small, usually round portions of meat (also the French word for hazelnuts). Sometimes the terms “medallions” and “noisettes” are both used to describe small, boneless, tender cuts of meat.

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ELL *(cont)*	• **Scallops:** Thin, boneless cuts of meat that are lightly pounded. • ***Emincé*:** Thin strips of meat used for sautéing. • **Offal:** Organ meat from hogs, cattle, or sheep, including sweetbreads (thymus glands), liver, kidney, tripe (muscular stomach lining), heart, and brain. • **Game meat:** Meat from animals that are not raised domestically, including deer, wild boar, moose, and elk.

Knowledge Check Answers (Page 389)

1. Prime is the highest grade available, often only to restaurants. Choice is the next grade, still excellent, and available to all foodservice and grocery store customers. (p. 385)
2. The two types of connective tissue are collagen and elastin. (p. 386)
3. Butterflying is slicing a cut of meat lengthwise, not all the way through, and opening it up. (p. 388)

PAGES 390–391 **PURCHASING, RECEIVING, AND STORING MEAT**

Reinforce and Review

- Meat is one of the most expensive food purchases a foodservice operation will make.
- Meat purchasing strategies—the right cuts and the right amount—have an impact on an operation's profitability.
- Do not accept delivery or purchase of meat that is not excellent and fresh.
- The cut should fit within the price point of the menu item for which the meat is intended.
- When thawing, keep meat under refrigeration until cooked.

Discuss

- What is meant by "Time is money"? How would this relate to serving meat at a restaurant or foodservice operation?
- Help students realize that paying personnel to prepare meat is a cost to consider when comparing the prices of various methods of butchering and purchasing.
- What is marbling and what is its effect on meat?
- What is freezer burn? Does freezer burn make meat unsafe to eat?

Customized Instruction

Learning disabled	Make or buy? Research with your local butcher or meat department manager the price difference between buying whole cuts of meat, like a bone-in prime rib, and a cap of rib eye steak. What are the cost savings in portioning some of these items yourself at home versus buying a single piece at a time? What is the difference in the price per pound for each?
Academically gifted	What is Kobe beef? Perform research and create a presentation for the class on what defines Kobe beef, where it is from, and the process that makes the beef unique.
ELL	Use the guidelines for receiving and storing meat found on page 391 to create a demonstration video to show how to accept or reject meat, what to look for, and how to properly store a variety of types of meat: beef, veal, lamb, mutton, and pork.

Knowledge Check Answers (Page 391)

1. When receiving meat, cost, freshness, and fat content should be considered. (p. 390)
2. Meat should be rejected based on its color, texture, odor, packaging, and freezer burn. (p. 391)

In-Class Activity: Science

Denaturing Protein Demonstration

Protein is made of assembled amino acid molecules. These types of chemical assemblies are called polymers.

If the protein is exposed to heat or acid, the amino acid polymer chains unravel. This is called denaturing, which means the nature has changed. Another word for it is cooked.

Using egg white and white fish, demonstrate denaturing of protein. Use heat in a frying pan and show the cooking process.

Next, use acid to denature protein. Lime juice is strongly acidic and will demonstrate the principle. Demonstrate the changes that occur by mixing egg white in lime juice.

Put the fish in lime juice. If the denaturing process is not visible during the class period, refrigerate it overnight and observe it during the next class meeting.

Homework Activity: Writing

Purchasing Meat

Of the five main factors listed for purchasing meat, which three do you think are the most important? Why? Have students write a one-page essay defending their choices.

PAGES 392–395 COOKING TECHNIQUES FOR MEAT

Reinforce and Review

- High heat and fast cooking maintains the moisture of the meat.
- Searing creates a flavorful crust that helps develop the flavor and texture of a piece of meat.
- Moist heat methods can use a lot of water or broth, or just a little.
- Water or broth cooking methods should enhance the flavor, not dilute it.
- Essential Skills: Tenderizing Meat describes the mechanical, chemical, and cooking means for tenderizing meat.
- Video: Mechanically Tenderizing Meat. For a video on mechanically tenderizing meat, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Can you "ruin" a filet mignon? What if you boiled it?
- Is dry meat ever a good thing?

Vocabulary Review

- **Barding:** The process of adding a layer of fat, commonly bacon or pork fatback, around meat before cooking it in order to protect and moisten the meat during cooking.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the various cooking techniques for meat.
Academically gifted	Research the history of proper internal cooking temperatures for pork. Historically, pork needed to be cooked above 165°F (74°C) to prevent trichinellosis. Present your research in a report about the changes in pork . Teacher note: • *http://www.porkcares.org/our-practices/food-safety-in-pork-production/the-truth-about-trichinosis-in-pork/* • *https://www.cdc.gov/parasites/trichinellosis/gen_info/faqs.html*
ELL	Create short commercials for each of the cooking methods featured on pages 392–393, featuring a specific technique for a specific cut, like grilling steaks. Create how-to steps, and present them in a performance or video.

In-Class Activity: Math

Where's the Beef?

In pairs, have the students strategize the most profitable way to use an entire beef carcass, and compete to brainstorm the most ways to use a whole cow, using the following information:

- Your restaurant has been able to purchase an entire beef carcass at a very good price.
- There will be 50 guests in the restaurant over the weekend.
- Using the whole cow, feed the 50 guests for three days. Develop a strategy for maximizing the profitability of the carcass.
- How many dishes and recipes can the team develop?

PAGES 396–398 **DETERMINING DONENESS**

Reinforce and Review

- Cooking meat orders correctly helps improve profitability.
- Always keep carryover cooking in mind when determining doneness.
- Gain experience cooking meat to be accurate.
- Essential Skills: Rendering Fat describes how to render fat.
- Video: Rendering Fat. For a video with step-by-step instructions for rending bacon fat, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- If you went to a restaurant and ordered a steak well done, what would you expect? What if it were served pink in the middle?
- What should a guest do if the meat is not cooked as he or she ordered it?
- What impact will refused or redone food have on the bottom line?

Customized Instruction

Learning disabled	Create a poster with images to translate the information presented in Table 16.4 on determining doneness and Table 16.5 on the cooking methods for different cuts of meat.
Academically gifted	How does one learn to cook meat to temperature? Do chefs develop a method to know when to pull items off of the heat to test the temperature? Perform some research on how experienced chefs develop this meat "sense." Write a brief summary of your findings. Alternative: Interview a chef on this subject, and write a summary.
ELL	Find images or video clips to show how to determine doneness and cooking methods for meat using Tables 16.4 and 16.5 as a guideline for your research. Write notes on each item, describing what you saw through your research.

Knowledge Check Answers (Page 398)

1. The basic methods of cooking meat are dry-heat cooking, moist-heat cooking, and combination cooking. (pp. 392–393)
2. Less tender cuts are best cooked by moist-heat cooking. (p. 393)

PAGE 398 CASE STUDY FOLLOW-UP ANSWERS: "MEAT, POULTRY, AND SEAFOOD"

1. Each student will have his or her own opinion on this. Carl and Leo will have to consider the variety of the dishes they serve, the price of those dishes, and the different meat products used. They will also have to think about meeting the needs of a variety of customers, such as those who focus on more heart-healthy meals and those with children (who may want to order simple dishes like tacos).
2. When purchasing meat, cost, freshness (color, texture, odor, and packaging), and fat content should be considered.

PAGE 399 CHAPTER ACTIVITIES ANSWERS

- **Is It Good?:** Students should refer back to page 385. Student essays should be well written and concise.

  Prime is the highest quality available for beef, veal, and lamb—usually found in only the finest restaurants. Prime has a lot of marbling and a cover of firm fat, which enhances flavor and juiciness. Choice is also a high grade and readily available for restaurant use and the general consumer. Choice beef is very tender, juicy, and flavorful, but has less marbling than Prime. Select is a slightly lower grade for beef, but still suitable for restaurant use depending on the desired end product. These cuts will be considerably lower in overall marbling content.

- **Searing:** Searing does not "seal in juices," but it does caramelize and develop flavor both on the outside of the meat and in the pan, for flavoring the water or broth. See the Activity Guide for an exercise related to the Maillard reaction and searing meat.

- **Dressing Percentage:** The dressing percentage is about 62 percent (rounded). See the Activity Guide for additional activities and answers.

- **Where's the Beef?:** Each group will need to do online research on the type of meat they selected and to find three recipes using that meat. The various groups' contributions will make a complete lesson.

- **I Love Meat!:** Students should do online research for the job description, qualifications, and salary of a butcher. Students' responses should be well written.

  Butchers cut, trim, and package meat for sale. Most butchers work in grocery stores and specialty meat shops. Butchers learn their skills on the job. Formal training is required, and can include a mentor or a formal apprenticeship. For information on labor statistics and wage information, see: *https://www.bls.gov/Oes/current/oes513021.htm*.

- **Best Way to Cook:** Students should refer back to Figure 16.5 on page 387 for the different cuts of meat. The following is a list of the cuts of meat and the best cooking method for each:
  - Steaks: dry heat
  - Rib roast: dry heat
  - Short ribs: combination
  - Top round: dry heat
  - Brisket: moist heat
  - Foreshank: combination
  - Hotel rack: dry heat
  - Loin chop: dry heat
  - Hind shank: moist heat
  - Tenderloin: dry heat
  - Lamb rack: dry heat
  - Loin chops: dry heat
  - Leg of lamb: dry heat
  - Breast: combination
  - Spare ribs: combination
  - Pork loin: dry heat
  - Pork tenderloin: dry heat
  - Fresh ham: dry heat

PAGE 400 EXAM PREP ANSWERS

1. A (p. 385)
2. C (p. 385)
3. D (p. 386)
4. A (p. 388)
5. C (p. 390)
6. C (p. 396)
7. D (p. 388)
8. D (p. 388)
9. C (p. 386)
10. B (p. 395)

Chapter 17
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers the grades and forms of poultry, as well as purchasing, fabricating, storing, and cooking poultry.

CHAPTER OBJECTIVES

17.1 Outline the federal grading systems for poultry.

17.2 Describe various kinds of poultry.

17.3 Identify receiving and storage procedures for poultry.

17.4 Demonstrate the steps for fabricating poultry.

17.5 Apply basic techniques for cooking poultry.

17.6 Match various cooking methods with different forms of poultry.

ADVANCE PREPARATION

Review	• Chapter 17, pages 404–421 • Unit case study, "Meat, Poultry, and Seafood," pages 380–381
Contact	• Butcher • School foodservice director, to contact commodity chicken representative • Local farmer or community representative that raises chickens • Local fire department or fire marshal to partner on the research project and presentation on the dangers of deep-frying turkey, in the Customized Instruction section for ELL under Cooking Techniques for Poultry. This activity is universally designed for all students to participate in, if chosen for a lesson plan. • Special poultry vendor, to source a variety of types of poultry
Prepare	• Whole chickens • Student activity supplies, per lesson plan

CHAPTER BREAKDOWN

PAGE 406 INTRODUCTION

Discuss

- Poultry is graded.
- Poultry must be handled properly for safety.
- Poultry has recommended cooking techniques.
- Poultry is more than chicken, turkey, and game birds.

Vocabulary Review

- **Poultry:** Birds, such as chickens, turkeys, and ducks, that are raised on farms for their meat and/or eggs.

PAGES 406–407 INSPECTION AND GRADING OF POULTRY

Reinforce and Review

- Poultry should be thoroughly cooked until the juices run clear.
- Poultry should not be overcooked or dried out.
- Physical characteristics are considered when grading poultry.

Discuss

- Ask the students, "Would you eat Grade B or C poultry?" They probably already do.
- Why is poultry arguably the most versatile protein?

Vocabulary Review

- **Giblets:** Refers to the edible offal of a bird, including the heart, liver, and gizzard.

Customized Instruction

Learning disabled	Outside of chicken and turkey, what other poultry dishes have you tried? Make a list of items you are interested in trying. Make a few notes on flavor pairings that you think would be the most appealing. Alternative: Why is chicken soup a common remedy for illness? Is there truth in this, or simply a ritual? Research the science behind chicken soup's reputation for curing illness, and write a short response with your findings. Teacher note: • *http://exploreim.ucla.edu/wellness/an-inside-scoop-on-the-science-behind-chicken-soup-and-the-common-cold/*

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Academically gifted	The Did You Know sidebar, found on page 407, presents this piece of information: *Modern domesticated chickens are descendants of the red jungle fowl—a bird originally from India and Southeast Asia.* Use the prompt above to conduct research on the red jungle fowl, its descendants, and how chicken came to be domesticated over time. Write a report with your findings. Teacher note: • *http://www.arkive.org/red-junglefowl/gallus-gallus/*
ELL	Using the passage from the text found below (from page 406), create a graphic organizer with images to show the guidelines for inspecting and grading poultry. Take notes on what you see in researching images, and make connections from the photos and the written guidelines. Poultry receives an inspection stamp (see Figure 17.1) for wholesomeness, and a Grade of A, B, or C (A being the highest), based upon a number of guidelines: • Poultry must have a good structure and shape and be free of deformity (such as a bent leg or curved backbone) in the natural form of the product. • Other factors taken into account involve flesh, fat covering, defeathering, discolorations, signs of broken or disjointed bones, and freezing defects. • Boneless poultry roasts should be free of all bones, cartilage, tendons, visible bruises, and blood clots. • Tenderloin, a boneless portion of poultry cut from the breast area, is expected to have tendons; however, the tendons must not extend more than one-half inch beyond the meat tissue.

PAGES 407–408 COMPOSITION OF POULTRY

Reinforce and Review

- Game birds are quite popular.
- Free-range poultry can have a delicious flavor.

Discuss

- Ask the students, "Do you prefer white meat or dark meat?" Why?

Vocabulary Review

- **Chicken:** Bird, including hens and roosters, commonly raised for its eggs and meat.
- **Turkey:** Large American bird related to the chicken that is raised for its meat, or is hunted for its meat, if wild.

- **Duck:** Swimming bird whose flesh is used for food.
- **Quail:** Small, wild bird that is hunted for food.
- **White meat:** Meat that is light/white in color and is from the areas of a fowl (bird) where little muscle use takes place, such as the breast. White meat is lower in calories and fat content and cooks faster than dark meat.
- **Fowl:** A bird, such as a chicken, that is raised or hunted for food.
- **Dark meat:** Meat that is darker in color and is from areas where the bird's muscles are used more heavily, such as the leg and thigh region. Dark meat is richer and more flavorful, higher in calories and fat, and requires more time to cook than white meat.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the characteristics of each type of poultry: chicken, turkey, duck, and quail, or any additional types of fowl or game birds, like the pigeon or the pheasant. Additional activity: Review images of chicken feet, and discuss the possible evolutionary links between dinosaurs and poultry. Chicken feet can also be special ordered from vendors, for a hands-on activity. Present several articles for discussion, such as: • http://www.smithsonianmag.com/science-nature/dinosaurs-living-descendants-69657706/ • https://www.washingtonpost.com/news/speaking-of-science/wp/2016/03/16/these-chickens-now-have-dinosaur-legs-but-thats-not-as-weird-as-you-might-think/?utm_term=.87db112394c5 • http://www.ucmp.berkeley.edu/diapsids/avians.html A variety of video clips can also be found using an Internet search engine.
Academically gifted	There is a fairly rare chicken breed called the Silkie, known as the "black chicken." Research this chicken breed, and create a presentation with visual aids to present to the class. Teacher note: • http://www.nytimes.com/2007/01/17/dining/17blac.html • http://modernfarmer.com/2014/10/silkies/ • https://www.youtube.com/watch?v=wolMUUoO2iE

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ELL	Create video commercials or live skits with visual aids promoting each of the following varieties of poultry: • Chicken • Turkey • Duck • Quail • Game bird of choice, like a pigeon Teacher note: Refer to the incredible, edible egg or pork advertising campaigns from industry councils for an example to share with students. Eggs: • http://www.prnewswire.com/news-releases/americas-egg-farmers-bring-back-iconic-incredible-edible-egg-jingle-173314551.html *multiple versions of this commercial can be found online Pork: • https://www.youtube.com/watch?v=YfFUbwMXaeg

Knowledge Check Answers (Page 408)

1. Grade A (the highest), B, and C are the grades of poultry. (p. 406)
2. White meat is lower in fat than dark meat. (p. 407)

PAGES 408–409 **PURCHASING, RECEIVING, AND STORING POULTRY**

Reinforce and Review

- The purchasing considerations are the same for poultry as for other meat.
- Birds can be purchased whole and fabricated in-house.
- Birds can also be roasted whole.
- Sometimes it is cost-effective to purchase poultry already fabricated.
- Refuse poultry that does not meet safety standards.

Discuss

- Ask students to list common poultry dishes.
- Discuss other dishes featuring other types of poultry outside the more common chicken variety.

Vocabulary Review

- **Game birds:** Birds, such as pheasant or quail, that are legally hunted in the wild for food or sport.

Customized Instruction

Learning disabled	Find or create images to show the guidelines for purchasing and receiving poultry, using the information found on pages 408 and 409.
Academically gifted	Hunting game birds has a rich history in places like England. Traditionally, birds were hung to be "aged" at room temperature for a month. How does that work for food safety? Research this tradition, and write a report with your findings. Teacher note: • *https://britishfoodhistory.wordpress.com/2014/08/12/the-glorious-twelfth/*
ELL	Create a video to show the guidelines for purchasing, receiving, and storing poultry.

PAGE 410 **FABRICATING POULTRY**

Reinforce and Review

- Poultry fabrication includes disjointing, boning, and cutting a bird into eight pieces.
- Essential Skills: Fabricating Boneless Chicken Breasts.

Discuss

- How does the fabrication of poultry differ from the fabrication of meat?
- What are the basic cooking techniques to prepare poultry?

Vocabulary Review

- **Boning:** Separating animal meat from the bones.

Customized Instruction

Learning disabled	Watch a variety of videos using different techniques to fabricate poultry. Take notes on each video on what you saw in each step. Compare the notes from your videos to the steps in the Essential Skills feature. What differences or similarities do you see? Write a few sentences to explain.
Academically gifted	How do other poultry fabrication techniques compare to those for chicken? Do you process a duck or quail in the same fashion? Research this topic, and create a poster and presentation to share with the class with images.
ELL	Create a graphic organizer with images to show the steps in cutting a chicken into eight pieces, boning a piece of chicken, and trussing a chicken.

In-Class Activity: Physical

Cutting a Whole Bird into Pieces

Use the instructions in the Essential Skills box to cut at least one chicken in the classroom.

Good: A demonstration by the teacher, viewing the provided video found at *Textbooks.Restaurant.org/Videos*.

Better: Students, in groups, each make a cut or two on a chicken.

Best: Students each have a small chicken to fabricate.

Teacher note: Refer to the Activity Guide for additional activities, and the ProStart competition guidelines, found at *chooserestaurants.org*.

In-Class Activity: Literacy

How Do I Cook Thee? Let Me Count the Ways

Chicken is one of the most versatile of all proteins.

It can be cooked with dry heat, moist heat, pan-fried, deep-fried, grilled, stir-fried, stewed, boiled, barbecued, scalloped, pressure-cooked, and cooked other ways as well.

Challenge students to come up with a long list of different cooking methods that will work for chicken. See if they can name 10 methods. Maybe they can name 20.

Have them write the methods down on paper and then award a point for each method named.

PAGES 410–415 **COOKING TECHNIQUES FOR POULTRY**

Reinforce and Review

- Poultry should be cooked until there is no pink and the juices run clear. Raw chicken is translucent, whereas cooked chicken is opaque. When chicken is undercooked, there is still a translucence in the thicker parts.
- Nearly any cooking technique can be successful for chicken and other poultry.
- Combination techniques are often used with poultry dishes.
- Essential Skills: Cutting a Whole Bird into Pieces describes how to cut up a whole bird.
- Essential Skills: Stuffing Poultry lists the steps for stuffing poultry.
- Essential Skills: Trussing a Chicken describes how to truss a chicken.
- Video: Fabricating a Chicken into Eight Pieces. For a video on fabricating a chicken into eight pieces, please go to: *Textbooks.Restaurant.org/Videos*.
- Video: Trussing a Chicken. To view a video showing how to truss a chicken, go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- How can you tell if a piece of poultry is cooked enough?
- What tools are needed to fabricate a turkey?

Vocabulary Review

- **Truss:** Tie the legs and wings of a bird to its body before roasting the bird.
- **Stuffing:** Also called dressing; a mixture of bread crumbs, herbs, and various other ingredients placed into the cavity of poultry before cooking. For food safety, it is actually best to bake stuffing for poultry separately and make sure it is cooked to 165°F (74°C).

Customized Instruction

Learning disabled	To stuff or not to stuff, that is the question. Create a video showing the proper way to stuff and cook a bird, considering proper internal cooking temperatures as the main food safety platform. Imagine you are filming a commercial around Thanksgiving as a PSA for safe turkey and stuffing cookery.
Academically gifted	Duck breast is often served medium rare. How does this conflict with what you know about food safety? Research this, and write a report with your findings. Teacher note: • *https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/poultry-preparation/duck-and-goosefrom-farm-to-table/ct_index* • *https://www.scientificamerican.com/article/complex-origins-food-safety-rules/*
ELL	Deep-frying is becoming a more common cooking method for a turkey. However, deep-frying a turkey can be a dangerous safety hazard if not done properly with the correct PPD and preparation steps. Research the proper way to accomplish deep-frying a turkey, paying close attention to video clips or stories of deep-frying gone dangerously wrong. Create a presentation for the class on the dos and don'ts of deep-frying turkeys. Teacher note: • *https://www.usfa.fema.gov/downloads/pdf/publications/turkey_fryers.pdf*

Knowledge Check Answers (Page 415)

1. Poultry would be rejected based on color, texture, odor, and freezer burn. (p. 409)
2. Poultry fabrication includes disjointing, boning, and cutting a bird into eight pieces. (p. 410)
3. The different cooking methods for poultry are dry heat, dry heat with fat or oil, moist heat, and combination cooking. (pp. 410–414)

In-Class Activity: Literacy

Chicken Match Game

Chicken dishes are found the world over, in nearly every nonvegan cuisine.

The table that follows lists the names of a few chicken dishes next to their countries of origin.

Using this table, play a match game with the students in class, or make a worksheet.

Have students try to match the chicken dish to its country of origin. Students could also name a country and try to think of a chicken dish from that country. Or they could learn the name of the dish and the country and try to locate it on a world map. There are many games to play with this information.

More information about this is given in chapters 10 and 11. This is meant as a fun introduction rather than a definitive assignment.

Chicken Paprikash	Hungary
General Tso's chicken	China
Chicken cacciatore	Italy
Chicken enchilada	Mexico
Chicken Kiev	Russia
Chicken cordon bleu	United States
Chicken fajitas	Texas (Tex-Mex)
Chicken Marsala	Italy
Chicken Tandoori	India
Chicken sate (satay)	Indonesia
Chicken rice (Khao man kai)	Thailand
Southern fried chicken	United States
Chicken fricassee	France
Chicken soup	Nearly every cuisine of the world

PAGE 415 CASE STUDY FOLLOW-UP ANSWERS: "MEAT, POULTRY, AND SEAFOOD"

1. White meat is low in calories and fat content and cooks faster. Dark meat, on the other hand, is generally higher in calories and fat. Dark meat also tends to be the richer, more flavorful meat and requires more time to cook. The restaurant should consider menu options using both forms of poultry. The cost of obtaining chicken parts versus fabricating a chicken in-house should also be considered.
2. Student answers will vary. Students must defend their positions. Fried chicken, while not a healthy option, appeals to certain customers—both as a traditional dish and taste-wise. The restaurant could also consider offering oven-fried foods, which offer a healthier option with the crunch and flavor. Health-conscious customers will stay away from traditional fried foods

PAGE 416 CHAPTER ACTIVITIES ANSWERS

- **Turkey Day Every Day!:** Students should consider various options inspired by other cuisines; for example, turkey in Italian dishes or Asian dishes. Other dishes include turkey tetrazzini, turkey soup, turkey pot pie, or turkey chili.
- **The Skinny on Chicken Skin:** Students will need to do online research to complete this activity.

  The skin on a whole roast chicken contains 508 calories (410 from fat), 45.6 grams of fat, 93 mg of cholesterol, 73 mg of sodium, 22 grams of protein, and no carbohydrates. Refer to the USDA database for more nutritional information, at: *https://www.ars.usda.gov/northeast-area/beltsville-md/beltsville-human-nutrition-research-center/nutrient-data-laboratory/docs/usda-national-nutrient-database-for-standard-reference/*.
- **The Whole Chicken:** To complete this activity, students need to fabricate a chicken, weighing each piece of the chicken. Then, they must multiply the weight of each piece of chicken by $0.80 to find how much each piece of chicken costs. For additional activities, refer to the student Activity Guide.
- **Truss It Up:** Students should refer back to the Essential Skills feature on page 413 that lists the steps on how to truss a chicken, and view the video showing how to truss a chicken. As students practice, their trussing skills will improve and they will become faster at it. They may come up with clever variations of their own that work just as well.
- **Pick the Dish:** Each pair of students will need to research five recipes that showcase chicken as the main protein. When students are researching the recipes, they need to keep in mind that their budget is $3.25 per plate, which includes the cost of the chicken and all of the components of the dish, including oils, seasonings, and garnishes.
- **White or Dark Meat?:** Student answers will vary. Students most likely will choose a preference based on taste, but they should then also consider cost, nutrition, cooking techniques (a favorite recipe?), and overall healthful qualities.

PAGE 417 EXAM PREP ANSWERS

1. D (p. 410)
2. A (p. 406)
3. B (p. 412)
4. B (p. 410)
5. C (p. 409)
6. A (p. 410)
7. B (p. 409)
8. C (p. 407)
9. C (p. 409)
10. B (p. 410)

Chapter 18
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers seafood inspection and the grades and forms of seafood, as well as purchasing, fabricating, storing, and cooking seafood.

CHAPTER OBJECTIVES

18.1 Outline the federal grading systems for seafood.

18.2 Describe the various kinds of seafood.

18.3 Identify procedures for receiving and storing seafood.

18.4 Demonstrate the steps for fabricating seafood.

18.5 Apply basic techniques for cooking seafood.

18.6 Match various cooking methods with different forms of seafood.

ADVANCE PREPARATION

Review	• Chapter 18, pages 422–441 • Unit case study, "Meat, Poultry, and Seafood," pages 380–381
Contact	• Fishmonger or fish merchant • Seafood inspector (FDA)
Prepare	• Activity-related ingredients for any of the provided activities chosen for the lesson plan

CHAPTER BREAKDOWN

PAGE 424 INTRODUCTION

Discuss

- The term "seafood" usually refers to protein foods that come from salt-water or freshwater sources.
- Although seafood is very popular in restaurants, there are folks who have an aversion to a "fishy" taste.
- Are there seafood specialties from your geographic area?

Vocabulary Review

- **Seafood:** All edible fish and shellfish that live in the water.

PAGES 424–425 SEAFOOD INSPECTIONS AND GRADES

Reinforce and Review

- Seafood is not regulated by the USDA, like meat and poultry are. It is monitored by the FDA. Processing inspections are done by the USDC. Sanitary handling and packing guidelines are from the NMFS. Clearly, fish is carefully monitored for safety and quality in the United States.
- When seafood is evaluated for odor, it is for a strong fish smell as opposed to a sweeter, fresher ocean or lake smell.
- A spoiled or rancid smell is never acceptable.
- The flesh of fine fish is tight-grained and plump. If the flesh divides or appears mushy, it is not as appealing. The flesh should never be slimy or gooey.

Discuss

- What is the inspection process for seafood in the United States?
- What is the grading process for seafood in the United States?

Customized Instruction

Learning disabled	The most common types of mollusks found in commercial kitchens are oysters, clams, mussels, scallops, squid, and octopus. Purchase them live, fresh, frozen, or canned. Mollusks with shells can be purchased in the shell or shucked (taken out of the shell). The most common types of crustaceans found in commercial kitchens are lobsters, shrimp, crabs, and crayfish. (p. 426) Using the prompt from the text above, create a graphic organizer with images to show the common types of mollusks, crustaceans, and finfish used in commercial kitchens. Alternative: Create a graphic organizer to show how seafood is graded, with images showing good or bad examples of the following grading standards: • Appearance • Blemishes and damage • Color • Dehydration • Flavor • Odor • Texture • Uniformity

Academically gifted	Review the foodborne illnesses and allergic reactions that are associated with fish and shellfish, and research which fish can cause certain severe reactions. Refer to *servsafe.com* and the ServSafe Coursebook for additional information. Create posters for each hazard, describing the symptoms and how to avoid contamination in the flow of food.
	
	Teacher note:
	• Parasites:
	  • Anisakis simplex
	  • Cryptosporidium parvum
	• Bacteria:
	  • Vibrio vulnificus and Vibrio parahaemolyticus
	• Viruses:
	  • Hepatitis A
	  • Norovirus
	• *http://www.calpoison.org/hcp/2011/callusvol9no2.htm*
	• *https://wwwnc.cdc.gov/travel/yellowbook/2016/the-pre-travel-consultation/food-poisoning-from-marine-toxins*

ELL	Create a graphic organizer with images to show the many varieties of finfish. Use images to show if the fish is a flatfish or a roundfish, and use notes to describe the characteristics of the examples of each.

Homework Activity: Writing

"Brain Food"

Is seafood really "brain food"? Have students research the nutritional benefits of seafood and write a one-page essay on their findings.

Homework Activity: Science

Seafood Inspection

Why is seafood not inspected when it is caught, and why is the inspection program voluntary? Should it be? Have students explain this process and defend their opinion in a one-page essay.

PAGES 425–427 **FORMS OF SEAFOOD**

Reinforce and Review

- Seafood is divided into two categories: finfish and shellfish.
- Finfish have a backbone and can live in freshwater or in the ocean. They can be classified according to their shape, either round or flat.
- Shellfish have an outer shell but no backbone and live primarily in salt water. Shellfish can be categorized further into three categories: crustaceans, mollusks, and cephalopods.
- Raw crustaceans should be purchased and cooked while alive. When they die first, they can develop toxic substances.

Discuss

- Ask students if they eat shellfish.
- What experience do they have with various types of shellfish?
- Are shellfish available regionally in your area?
- Do shellfish only grow in ocean salt water?

Vocabulary Review

- **Shellfish:** Animal that has an outer shell but no backbone and lives in the water, primarily salt water.
- **Crustaceans:** Animals that live in the water and have an outer skeleton and jointed appendages. Shrimp, lobster, and crab are examples.
- **Mollusks:** Animals that live in the water and have one or two hard shells. Abalone is an example of a univalve (one shell). Bivalves have two shells that are hinged; clams, oysters, mussels, and scallops are examples.

- **Cephalopods:** Marine mollusks that have muscular tentacles around the head, such as octopus and squid. Cephalopods move by expelling water in a jet from under the head. They have highly developed eyes, and usually also have a sac from which ink can be ejected for self-defense or escape.
- **IQF (individually quick frozen):** Process in which each individual piece of food is frozen very quickly. It is commonly used for seafood and vegetables.
- **Deveining:** The process of removing the digestive tract from shrimp.
- **Finfish:** Fish that have a backbone and live in either freshwater or salt water and are classified by their shape, either round or flat. Cod, sea bass, tuna, and trout are examples.
- **Roundfish:** Finfish that have a round body shape, one eye on each side of the head, and swim upright. Examples include cod, tuna, and trout.
- **Flatfish:** Finfish that are oval and flat in shape, swim on their side, and have both eyes on the upper side in the front part of the head. Examples include flounder, halibut, and turbot.
- **Whole or round:** Describes the market form of finfish where they are just as they were caught.
- **Drawn:** Describes the market form of finfish where only the viscera (guts) are removed.
- **Dressed:** Describes the market form of finfish where the viscera, scales, fins, and often the head are removed.
- **Fish fillets:** The boneless pieces cut from the sides of finfish.
- **Butterfly fillet:** The two sides cut away from the backbone of a finfish.
- **Steak:** Market form of finfish that is a cross section cut from the fish—generally from a large fish.

Customized Instruction

Learning disabled	Create a word wall with images or screenshots for the following key terms and definitions: • **Shellfish:** Animal that has an outer shell but no backbone and lives in the water, primarily salt water. • **Crustaceans:** Animals that live in the water and have an outer skeleton and jointed appendages. Shrimp, lobster, and crab are examples. • **Mollusks:** Animals that live in the water and have one or two hard shells. Abalone is an example of a univalve (one shell). Bivalves have two shells that are hinged; clams, oysters, mussels, and scallops are examples. • **Cephalopods:** Marine mollusks that have muscular tentacles around the head, such as octopus and squid. Cephalopods move by expelling water in a jet from under the head. They have highly developed eyes, and usually also have a sac from which ink can be ejected for self-defense or escape.

(continued)

Learning disabled *(cont)*	• **IQF (individually quick frozen):** Process in which each individual piece of food is frozen very quickly. It is commonly used for seafood and vegetables. • **Deveining:** The process of removing the digestive tract from shrimp. • **Finfish:** Fish that have a backbone and live in either freshwater or salt water and are classified by their shape, either round or flat. Cod, sea bass, tuna, and trout are examples. • **Roundfish:** Finfish that have a round body shape, one eye on each side of the head, and swim upright. Examples include cod, tuna, and trout. • **Flatfish:** Finfish that are oval and flat in shape, swim on their side, and have both eyes on the upper side in the front part of the head. Examples include flounder, halibut, and turbot. • **Whole or round:** Describes the market form of finfish where they are just as they were caught. • **Drawn:** Describes the market form of finfish where only the viscera (guts) are removed. • **Dressed:** Describes the market form of finfish where the viscera, scales, fins, and often the head are removed. • **Fish fillets:** The boneless pieces cut from the sides of finfish. • **Butterfly fillet:** The two sides cut away from the backbone of a finfish. • **Steak:** Market form of finfish that is a cross section cut from the fish—generally from a large fish.
Academically gifted	What are some of the traditional methods for harvesting seafood? How does this connect to sustainability? Perform research that connects to this topic and write a response.
ELL	Create a graphic organizer with images or screenshots for the following key terms and definitions: • **Shellfish:** Animal that has an outer shell but no backbone and lives in the water, primarily salt water. • **Crustaceans:** Animals that live in the water and have an outer skeleton and jointed appendages. Shrimp, lobster, and crab are examples. • **Mollusks:** Animals that live in the water and have one or two hard shells. Abalone is an example of a univalve (one shell). Bivalves have two shells that are hinged; clams, oysters, mussels, and scallops are examples. • **Cephalopods:** Marine mollusks that have muscular tentacles around the head, such as octopus and squid. Cephalopods move by expelling water in a jet from under the head. They have highly developed eyes, and usually also have a sac from which ink can be ejected for self-defense or escape.

(continued)

ELL *(cont)*	• **IQF (individually quick frozen):** Process in which each individual piece of food is frozen very quickly. It is commonly used for seafood and vegetables. • **Deveining:** The process of removing the digestive tract from shrimp. • **Finfish:** Fish that have a backbone and live in either freshwater or salt water and are classified by their shape, either round or flat. Cod, sea bass, tuna, and trout are examples. • **Roundfish:** Finfish that have a round body shape, one eye on each side of the head, and swim upright. Examples include cod, tuna, and trout. • **Flatfish:** Finfish that are oval and flat in shape, swim on their side, and have both eyes on the upper side in the front part of the head. Examples include flounder, halibut, and turbot. • **Whole or round:** Describes the market form of finfish where they are just as they were caught. • **Drawn:** Describes the market form of finfish where only the viscera (guts) are removed. • **Dressed:** Describes the market form of finfish where the viscera, scales, fins, and often the head are removed. • **Fish fillets:** The boneless pieces cut from the sides of finfish. • **Butterfly fillet:** The two sides cut away from the backbone of a finfish. • **Steak:** Market form of finfish that is a cross section cut from the fish—generally from a large fish.

Knowledge Check Answers (Page 427)

1. Both fresh and processed seafood items can be graded. Items are typically graded as A, B, C, or Below Standard, based on appearance, blemishes and damage, color, dehydration, flavor, odor, texture, and uniformity. Grade A is the highest-quality seafood available. These items have an excellent appearance, have good flavor and odor, and are free of blemishes or defects. Grade B items have good quality but usually have blemishes or other defects. Grade C items have relatively good quality, but these items are only appropriate for dishes that do not require an attractive appearance. Below Standard items do not have good quality. (pp. 424–425)
2. Flatfish are oval and flat in shape and have two eyes on the top, front part of the head. Examples of flatfish are flounder and halibut. Roundfish have a round body shape and one eye on each side of the head, and they swim upright in salt water or freshwater. Examples of roundfish are cod and seabass. (p. 426)
3. The different types of crustaceans are shrimp, lobster, and crab. (p. 425)

PAGES 428–430 RECEIVING AND STORING SEAFOOD

Reinforce and Review

- When receiving finfish, consider the color, odor, texture, eyes, and packaging.
- Live shellfish should be received on ice and at an air temperature of 45°F (7°C) or lower.
- Storage of fish items is important because they are highly perishable.
- Shellfish is always stored in the original container. The identification information should remain on the container.
- Help students understand that foodborne pathogens or biological toxins can be present in shellfish.

Discuss

- If you were receiving a delivery of fish, what would you look for? How could you tell if it was good or bad?
- How should finfish and shellfish be stored?

Customized Instruction

Learning disabled	Create videos or skits that show how to receive and store seafood, using visual aids and images to show examples of good and bad practices. Use the guidelines on pages 428–430 on how to accept or reject fish and shellfish, and how to properly store finfish and shellfish.
Academically gifted	Research the role of a shellfish buyer. What does a shellfish expert need to know about how to buy shellfish? How are things like oysters raised and bought in America? Perform research and write a report with your findings.
ELL	Create a graphic organizer with images to show how to receive and store seafood, using the information on pages 428–430

PAGES 430–432 FABRICATING SEAFOOD

Reinforce and Review

- Mollusks need very little fabrication, but require careful cleaning. The meat comes out of the mollusk whole, so trimming and cutting are not required. However, bacterial contamination is possible with mollusks, so they must be handled and recorded properly.
- Lobster can become tough if overcooked, and it is far too valuable a food to risk overcooking. Careful attention should be paid to making sure it is cooked properly.
- Essential Skills: Shucking Clams describes how to correctly shuck clams.
- Essential Skills: Filleting a Roundfish lists the steps to filleting a roundfish.
- Essential Skills: Peeling and Deveining Shrimp describes how to peel and devein shrimp.
- Video: Filleting a Roundfish. For a video on filleting a red snapper, a type of roundfish, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- What is the best way to fabricate seafood?
- What is the difference between scaling and filleting seafood?

Vocabulary Review

- **Filleting:** Fish fabrication step in which the flesh of the fish is separated from the bones.
- ***Goujonettes:*** Thin strips of fish cut from the fish fillet.
- **Paupiettes:** Thin, rolled fish fillets filled with stuffing.
- **Shucking:** The opening or removing of a mollusk's shell.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the following definitions: • **Filleting:** Fish fabrication step in which the flesh of the fish is separated from the bones. • ***Goujonettes:*** Thin strips of fish cut from the fish fillet. • **Paupiettes:** Thin, rolled fish fillets filled with stuffing. • **Shucking:** The opening or removing of a mollusk's shell. • **Deveining:** The process of removing the digestive tract from shrimp.
Academically gifted	Research the traditional method for preparing and cooking Dover sole for table-side presentation. Write a response to describe the history of the dish and how to serve it.
ELL	Choose a method for fabricating each type of seafood—one method for finfish, and another method for shellfish—and create a video or poster with images showing each step in detail.

PAGES 433–435 **COOKING TECHNIQUES FOR SEAFOOD**

Reinforce and Review

- All cooking methods for fish should help retain moisture and texture.
- Fragile fish can dry out easily.
- Fish that are more sturdy and meaty can be cooked over an open flame or other dry heat.
- Very tender lean fish can be simmered gently in court bouillon or fumet.

Discuss

- What is the best way to choose a cooking method for seafood?
- For each cooking method, name a seafood dish that uses that method.

Vocabulary Review

- ***En papillote:*** Cooking method for fish in which the fish, herbs, vegetables, and/or sauce are encased in parchment paper and steamed in a hot oven.
- **Bouillabaisse:** A French seafood stew made with assorted fish and shellfish, onions, tomatoes, white wine, olive oil, garlic, saffron, and herbs.

Customized Instruction

Learning disabled	Create a video to demonstrate how to fold an *en papillote.* Perform research on the proper technique, and film your presentation.
Academically gifted	Research the history of bouillabaisse. Write a response with your findings.
ELL	Create a graphic organizer with images to show the various cooking methods listed below. Include the types of seafood that best match the cooking method. Refer to Table 18.2. • Dry-heat cooking: bake, broil, or grill • Dry-heat cooking: with fat or oil • Moist-heat cooking: poaching, simmering, or steaming • Combination cooking: stewing or braising

In-Class Activity: Physical

Speedy Responses

There are many ways to cook meat, poultry, sausages, and seafood. There are also inappropriate ways to cook things. For example, boiling pork loin chops would not be correct, but boiling would be appropriate for crab.

Play a quiz game. Divide the class into two teams.

There will be two types of cards, each with one word on each card.

Make a stack of cards with these cooking techniques: boil, roast, grill, broil, stew, bake, sauté, pan-fry, deep-fry, stir-fry, poach, *en papillote,* pressure-cook, denature with acid, braise, steam, simmer, consume raw (this would be sushi and tartare, and can be left out if you prefer).

Make another stack of cards with cuts of meat, types of poultry, seafood, and sausages. Use anything from this chapter, including items from Table 18.1 and Table 18.2, and other lists from the text, such as crab, shrimp, lobster, clams, scallops, crayfish, sausage, pâté, terrine, and galantine.

Place both stacks of cards face down.

Taking turns, the MC, or teacher, picks up the top card of each stack and reads them. For example: "Shrimp" and "Grill." The student must quickly say "Yes" or "No," indicating whether or not this cooking technique would be appropriate for this protein item. If the answer is correct, the student wins a point for his or her team, and it is the other team's turn. If the answer is wrong, the other team gets a point, and then still gets the next turn.

This game will put students "on the spot" to answer in the heat of the moment.

Homework Activity: Math

Making Protein Decisions

A successful business executive for a large foods company once said, "It's easy to make a million dollars. The trick is to not spend a million dollars doing it."

Have students consider this statement. How might this relate to protein decisions for a restaurant?

Have students write at least two paragraphs of their thoughts and strategies for profitability, with specific consideration of the protein foods that could be featured at a restaurant.

Their writing should include real-world profitability topics, and not just general concepts about good ideas for menu items.

PAGE 435 **DETERMINING DONENESS**

Reinforce and Review

- Most finfish and shellfish are naturally tender, so it is important not to undercook or overcook fish for tenderizing purposes.

Discuss

- What are the guidelines for determining doneness in seafood?
- How does carryover cooking affect seafood?

Customized Instruction

Learning disabled	Create a video or skit that shows how to determine doneness when cooking fish, using the list on page 435 (and below). Following are guidelines to consider in determining doneness when cooking fish: 1. Flesh turns from translucent to opaque. Raw flesh of most fish is translucent. When the flesh turns a denser, more opaque shade, the fish is done. 2. Flesh becomes firm. Raw fish is somewhat mushy. As the flesh cooks, it becomes firmer and springs back to the touch when done. 3. Flesh pulls easily away from the bone. As the fish cooks, the flesh loosens and can be effortlessly separated from the bone when done. 4. Flesh begins to flake. As the fish cooks, connective tissue breaks down and muscle fibers begin to separate from each other, or flake. The fish is done as soon as flaking starts to occur.

(continued)

Academically gifted	What about raw seafood? Research how sushi-grade seafood becomes the center of the plate in many restaurants. What types of food safety protocols do foodservice suppliers and operators need to follow to keep guests safe? How do restaurants keep guests safe? What are some common preparations that involve sushi-grade seafood? Compile your findings in a report to present to the class, and create visual aids to show the essential points in your research.
ELL	Create a graphic organizer with images to show how to determine doneness with seafood, using the list on page 435 (and below). Following are guidelines to consider in determining doneness when cooking fish: 1. Flesh turns from translucent to opaque. Raw flesh of most fish is translucent. When the flesh turns a denser, more opaque shade, the fish is done. 2. Flesh becomes firm. Raw fish is somewhat mushy. As the flesh cooks, it becomes firmer and springs back to the touch when done. 3. Flesh pulls easily away from bone. As the fish cooks, the flesh loosens and can be effortlessly separated from the bone when done. 4. Flesh begins to flake. As the fish cooks, connective tissue breaks down and muscle fibers begin to separate from each other, or flake. The fish is done as soon as flaking starts to occur. 5. Check internal temperature. Internal temperature for fish is at least 145°F (63°C).

Knowledge Check Answers (Page 435)

1. Finfish and shellfish should be stored at a temperature of 41°F (5°C) or lower. (p. 430)
2. A roundfish should have the guts removed and then be filleted. A mollusk should be opened and the meat removed from the shell. (p. 426)
3. Cooking methods for seafood include dry heat, dry-heat cooking with fat and oil, moist heat, and combination techniques. (pp. 433–435)

Homework Activity: Integrating Literature in CTE

Great Fish in Literature

Make a list of famous fish in literature that you may have studied in school, like *The Old Man and the Sea,* or *Moby Dick*. What other famous seafood references can you find by performing research? For each character or theme, create a recipe inspired by the literature or another thematic element. For example, research how to cook Moby Dick, a sperm whale, or find the yield of what could be the largest sperm whale of all time. Investigate whale hunting, and discover which parts of the whale are used for certain purposes. Feel free to use other passages in literature that may describe a culinary experience or describe a meal with seafood. Find a reference to seafood, and create a presentation with visual aids and recipes.

Teacher note:

- *http://oceanservice.noaa.gov/facts/mobydick.html*
- *http://www.roberttally.com/uploads/4/9/4/0/4940675/whale_as_dish.pdf*
- *http://www.newyorker.com/magazine/2007/04/09/cooked-books*
- *http://inliterature.net/*

PAGE 436 CASE STUDY FOLLOW-UP ANSWERS: "MEAT, POULTRY, AND SEAFOOD"

1. The most important step in purchasing seafood is deciding on the type and quality of seafood that is needed for particular menu items—the intended use of the seafood. When purchasing fresh fish, Carl and Leo need to focus on the market form, storage capabilities, and vendor selection.
2. Students' ideas will be interesting, and could be influenced by their personal prior experiences eating seafood. Finfish have a backbone and can live in freshwater or in the ocean. They can be classified according to their shape, either round or flat. Shellfish have an outer shell but no backbone and live primarily in salt water. Shellfish can be categorized further into three categories: crustaceans, mollusks, and cephalopods.

PAGE 437 CHAPTER ACTIVITIES ANSWERS

- **Check It Out:** Students should note that the USDA is not involved with seafood as it is for meat and poultry. They should also note that seafood inspection is voluntary, whereas meat inspection is mandatory. Also, there are many more agencies involved in fish regulation than in meat and poultry regulations. Both fresh and processed seafood items can be graded. Items are typically graded as A, B, C, or Below Standard based on these grading factors: appearance, blemishes and damage, color, dehydration, flavor, odor, texture, and uniformity.
- **Forms of Seafood:** Shellfish are categorized into crustaceans (shrimp, lobster, and crab), mollusks (abalone, clams, oysters, mussels, and scallops), and cephalopods (octopus and squid). Finfish have the skeleton on the inside and shellfish have it on the outside.

- **How Much Do You Get?:**

  9 lb = 144 oz

  To solve for 0.6 lb (60 percent of the 16 oz), divide 16 oz by 10 to convert the decimal 0.6 into ounces:

  16 ÷ 10 = 1.6

  1.6 × 6 = 9.6 oz

  0.6 pound is equal to 9.6 oz, so 144 + 9.6 = 153.6 oz

  70 percent = 0.7

  153.6 oz × 0.7 = 107.52

  With a 70 percent yield, the salmon will yield 107.52 oz of usable fish. Because each side of the salmon yields one large fillet, for a total of two fillets, divide 107.52 by 2: 107.52 ÷ 2 = 53.76 oz.

  Additionally, follow this activity by asking how many 8-ounce portions can be cut from the fillets, or offer a range of portion sizes, from 4 ounces to 8 ounces, to allow students to determine portion yields. Because we converted to ounces, this is a relatively painless division problem to solve.

  107.52 ÷ 8 = 13.44 8-ounce portions

  107.52 ÷ 4 = 26.88 4-ounce portions

  107.52 ÷ 6 = 17.92 6-ounce portions

  This activity can be adapted into a hands-on yield test, resulting from student salmon fabrication, testing to see if the 70 percent yield matched that of the students' yield.

- **Fabricating Fish:** Students will work in pairs to fillet a fish and shuck one oyster or clam, following the steps in the Essential Skills features found on pages 431 and 432, as well as the video for how to fillet a roundfish (p. 431). Students should watch each other as they do this activity and take down any notes that might be useful to the class. Experience is the best teacher here, and students might discover keys to success that they can share.
- **Think Outside the Restaurant:** Students will need to do online research on one of the jobs listed in the activity. A good source to use is the Bureau of Labor Statistics, at *https://www.bls.gov/ooh/*.
- **Catch of the Day:** Local research is valuable. Fresh seafood is especially nice when it is brought to the table very soon after the catch. Local fish makes this possible.

PAGE 438 EXAM PREP ANSWERS

1. B (p. 426)
2. A (p. 431)
3. B (p. 429)
4. A (p. 425)
5. C (p. 426)
6. A (p. 427)
7. C (p. 426)
8. C (p. 429)
9. C (p. 426)
10. A (p. 433)

Chapter 19
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers yeast breads, the types of dough, and yeast bread preparation.

CHAPTER OBJECTIVES

19.1 Describe the different types of dough and their preparation methods: lean, rich, and sourdough.

19.2 Bake various types of yeast bread.

ADVANCE PREPARATION

Review	• Chapter 19, pages 446–461 • Unit case study, "Baking and Desserts," pages 444–445
Contact	• Local baker or pastry chef
Prepare	• Ingredients from the activities chosen for the lesson plan

CHAPTER BREAKDOWN

PAGE 448 **INTRODUCTION**

Discuss

- What are some common yeast breads?
- Ask students how many of them have eaten yeast bread in the last 24 hours.

PAGES 448–449 TYPES OF YEAST DOUGH

Reinforce and Review

- Yeast breads are one of the most common, and most cross-cultural, foods on the planet.
- Yeast is a living organism that acts as a leavener.
- Yeast breads are divided into three categories: lean dough, rich dough, and sourdough.

Discuss

- What is the difference between lean dough and rich dough?
- What are some examples of lean doughs, rich doughs, and sour doughs?

Vocabulary Review

- **Lean doughs:** Bread doughs made with flour, yeast, water, and salt that have very little or no sugar or fat. Breads made from lean dough tend to have a chewy texture and a crisp crust. Examples include French bread and hard rolls.
- **Rich doughs:** Bread doughs made with the same ingredients as lean doughs, but with the addition of shortening or tenderizing ingredients such as sugars, syrups, butter, eggs, milk, and cream. These additional ingredients change the bread's overall texture, as well as the way the dough is handled. Rich doughs have a cake-like texture after baking. Parker House rolls, cloverleaf rolls, soft rolls, and Danish are examples of rich doughs.
- **Sourdough:** Bread dough that is leavened and that uses a starter, which is a mixture of water, yeast, and all-purpose flour that has been fermented (usually overnight) until it has a sour smell. The starter serves as the yeast, rather than the dry yeast that is used in other doughs. Sourdough has a slightly sour taste. Country loaves, rye loaves, and San Francisco sourdough are examples.
- **Starter:** A mixture of water, yeast, and all-purpose flour that has been fermented (usually overnight) until it has a sour smell; used to make sourdough breads.

Knowledge Check Answers (Page 449)

1. The three basic kinds of yeast dough are lean dough, rich dough, and sourdough. (p. 449)
2. Lean dough is dough with little or no fat or sugar. Rich dough is dough with shortening or other fat, plus other rich ingredients like eggs or milk. Sourdough is another type of dough made with yeast batter. (p. 449)

Customized Instruction

Learning disabled	Create a graphic organizer with images to help further define the key terms and definitions listed below: • **Lean doughs:** Bread doughs made with flour, yeast, water, and salt that have very little or no sugar or fat. Breads made from lean dough tend to have a chewy texture and a crisp crust. Examples include French bread and hard rolls. • **Rich doughs:** Bread doughs made with the same ingredients as lean doughs, but with the addition of shortening or tenderizing ingredients such as sugars, syrups, butter, eggs, milk, and cream. These additional ingredients change the bread's overall texture, as well as the way the dough is handled. Rich doughs have a cake-like texture after baking. Parker House rolls, cloverleaf rolls, soft rolls, and Danish are examples of rich doughs. • **Sourdough:** Bread dough that is leavened and that uses a starter, which is a mixture of water, yeast, and all-purpose flour that has been fermented (usually overnight) until it has a sour smell. The starter serves as the yeast, rather than the dry yeast that is used in other doughs. Sourdough has a slightly sour taste. Country loaves, rye loaves, and San Francisco sourdough are examples. • **Starter:** A mixture of water, yeast, and all-purpose flour that has been fermented (usually overnight) until it has a sour smell; used to make sourdough breads.
Academically gifted	Starters that prove to make excellent breads are cultivated by bakers, and are "fed" to keep them alive for decades or more. Research how to make a starter that is made with local ingredients from your region, and how to turn the starter into a class project by building and growing the starter. Create a presentation on the starter recipe, method, and *mise en place,* as well as how to continue the starter over time.
ELL	Create a list with the three categories of yeast doughs. List examples under each category, and find or create images to represent the examples.

Homework Activity: Literacy

Sourdough in Song and Story

Sourdough has played a role in American history.

- Because a crock of sourdough can travel well, Western pioneers often carried sourdough starters.
- San Francisco has a lush Gold Rush and sourdough history that is influenced by the Bay Area climate.
- The Alaskan Gold Rush also has a rich sourdough tradition.
- The Amish of Pennsylvania and Indiana use a sourdough starter as a gift of friendship.

Sourdough shows up elsewhere, too.

Research and explore an aspect of sourdough in the United States. Write a poem, song, skit, or story about some aspect of sourdough in the United States. Present your creation to the class, either individually or in groups.

PAGES 450–451 YEAST BREAD METHODS

Reinforce and Review

- Bakers most often use two primary methods to make yeast breads: the straight-dough method and the sponge method.
- The straight-dough method is a bread mixing method that mixes all the ingredients at once.
- The sponge method is a two-stage method for mixing bread dough, beginning with yeast and a portion of ingredients.
- The temperature referred to here is the room temperature, or the temperature in the proofing box. There is some heat generated by the yeast growth, but dough needs to be a in a warm place to rise.
- Video: The Straight-Dough Method. For a video on the straight-dough method, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Why is kneading important in making yeast breads?
- After yeast dough has been mixed and left to rise, why does the baker need to punch it down?
- What happens during proofing?

Vocabulary Review

- **Straight-dough method:** Also called the straight-mix method, this method of making yeast breads can be used on all types of yeast dough. All ingredients are combined at the same time, or the yeast is mixed with warm water first at a temperature of 100°F–120°F (38°C–49°C). After the water, yeast, sugar, salt, and flour are properly mixed, the dough is kneaded until it is elastic and smooth.
- **Kneading:** The process of preparing dough by pressing the mixture of ingredients (water, flour, yeast, etc.) together with your hands. Kneading is important because it develops the gluten in the dough, which gives the dough the stretch and give it needs to achieve the proper texture.
- **Sponge method:** Method of mixing yeast doughs. In the first stage, the yeast, half of the liquid, and half of the flour are mixed together to make a thick batter called a sponge. After the sponge rises and doubles in size, the remaining fat, liquid, salt, sugar, and flour are added. The dough is then kneaded and left to rise. Breads made with the sponge method have a lighter texture and more unique flavor than breads made using the straight-dough method.
- **Sponge:** The thick batter resulting from the first stage of the sponge method of mixing yeast doughs, in which the yeast, half of the liquid, and half of the flour are mixed together.
- **Proof:** Stage in the process of making yeast bread during which the dough is left to rise a second time, after it has been kneaded and punched down. Proofing is the final rise of the yeast product before baking.

Customized Instruction

Learning disabled	Break into teams and debate the straight-dough method versus the sponge method, based on the characteristics of the technique but also by which products come from certain methods; for example, straight dough is team baguette, but sponge method is team donut. Build a word wall with images, divided into the two groups, with the key debate points noted by the images.
Academically gifted	How do you make yeast? What are the origins of yeast historically? Research the history of yeast, and provide three main methods of "making" yeast that have been used throughout history. Recall that yeast is a fungus, and discuss some of the scientific connections throughout history as the function of yeast became a proven theory. Teacher note: • *https://thelibrary.org/lochist/periodicals/bittersweet/sp79i.htm* • *https://circulatingnow.nlm.nih.gov/2014/01/24/beer-yeast-and-louis-pasteur* Students may discuss yeast's roll in making beer and alcohol.
ELL	Create a video graphic organizer to demonstrate the action involved in the following key-term definitions: • **Straight-dough method:** Also called the straight-mix method, this method of making yeast breads can be used on all types of yeast dough. All ingredients are combined at the same time, or the yeast is mixed with warm water first at a temperature of 100°F–120°F (38°C–49°C). After the water, yeast, sugar, salt, and flour are properly mixed, the dough is kneaded until it is elastic and smooth. • **Kneading:** The process of preparing dough by pressing the mixture of ingredients (water, flour, yeast, etc.) together with your hands. Kneading is important because it develops the gluten in the dough, which gives the dough the stretch and give it needs to achieve the proper texture. • **Sponge method:** Method of mixing yeast doughs. In the first stage, the yeast, half of the liquid, and half of the flour are mixed together to make a thick batter called a sponge. After the sponge rises and doubles in size, the remaining fat, liquid, salt, sugar, and flour are added. The dough is then kneaded and left to rise. Breads made with the sponge method have a lighter texture and more unique flavor than breads made using the straight-dough method. • **Sponge:** The thick batter resulting from the first stage of the sponge method of mixing yeast doughs, in which the yeast, half of the liquid, and half of the flour are mixed together. • **Proof:** Stage in the process of making yeast bread during which the dough is left to rise a second time, after it has been kneaded and punched down. Proofing is the final rise of the yeast product before baking.

Homework Activity: Writing

Moldy Bread

Breads can become unsafe when moldy. Have students investigate mold formation in yeast breads and how to prevent it. Have students write a one-page essay on their findings.

PAGES 451–454 **YEAST BREAD PREPARATION**

Reinforce and Review

- There are 10 basic steps in making yeast breads.
- Fresh yeast needs to be refrigerated until it is time to use it.
- Slice warm whole wheat bread carefully with a sharp bread knife to prevent smashing the warm loaf.
- Essential Skills: Making Yeast Breads explains the 10 basic steps in making yeast breads.
- Essential Skills: Making Lighter, Stone-Ground Whole Wheat Bread describes how to lighten a whole wheat loaf.

Discuss

- Why are some yeast breads glazed or washed before baking?
- Ask students how many shapes of yeast breads there are. Perhaps students can think of other shapes that have not been mentioned.

Vocabulary Review

- **Scaling ingredients:** First step in making yeast breads, in which all ingredients are measured accurately.
- **Mixing and kneading ingredients:** Second step in making yeast breads. Mixing combines the ingredients, distributes the yeast, and develops the gluten. Kneading further develops the gluten and makes the dough smooth and elastic.
- **Fermentation/pushing up:** Third step in making yeast breads. During fermentation, the yeast acts on sugars and starches in the dough to produce carbon dioxide and alcohol. Carbon dioxide gas gets trapped in the gluten. This is also known as pushing up.
- **Punching down:** Fourth step in making yeast breads, in which the dough is gently folded down to expel and redistribute carbon dioxide gas pockets in the dough. Punching also relaxes the gluten and redistributes the yeast evenly.
- **Portioning:** Fifth step in making yeast breads, in which the dough is divided into pieces of uniform weight and size according to the product. Portions should be weighed on a portion scale to ensure uniformity.
- **Rounding:** Sixth step in making yeast breads, in which the dough is shaped into smooth, round balls. The outside layer of gluten becomes smooth, which holds in the gases and makes it easier to shape the dough, which is the next step.

- **Shaping:** Seventh step in making yeast breads, in which the dough can be further shaped into the desired form.
- **Cooling and storing:** Tenth and final step in making yeast breads. The finished bread is removed from the pan and placed on a rack to allow air circulation, cooling at room temperature. After it is thoroughly cooled, the bread is wrapped in a moisture-proof bag so that it will not become stale as quickly.

Customized Instruction

Learning disabled	Create a graphic organizer with images to illustrate the 10 steps of making yeast breads. The visual aid can be a comic book, graphic novel, poster, or video—images should tell the story of the action in each step.
Academically gifted	What are the pros and cons of mixing yeast bread doughs by hand versus making the dough using a mixer? Design an experiment that tests the 10 steps using the two methods, by hand or by machine, and record observations throughout. Analyze the resulting bread, and perform a summary of the experiment. Why is it important to learn methods with and without technology or equipment? Include your thoughts in the summary response.
ELL	Write and film or present in a live performance a song that features the 10 steps of making yeast breads. Alternative: Film your own cooking show segment showing the 10 steps of making yeast breads. The segment should teach the audience the 10 steps, showing the action of each item.

Knowledge Check Answers (Page 454)

1. Straight dough is mixed all at once. The sponge method creates a yeast-and-flour sponge with a portion of the ingredients. The rest are added in the next phase of mixing. (p. 450)
2. The 10 steps of making yeast breads are scaling ingredients, mixing and kneading ingredients, fermentation, punching down, portioning, rounding, shaping, proofing, baking, and cooling and storing. (pp. 452–453)

PAGE 455 CASE STUDY FOLLOW-UP ANSWERS: "BAKING AND DESSERTS"

1. Students need to do a make-or-buy analysis to determine whether Salvatore's should make its own bread from scratch or purchase ready-made bread. This analysis will help Salvatore's balance how much food the kitchen produces with the operation's quality standards.
2. Students should refer back to pages 452–453. Answers should reference:
   - Scaling ingredients
   - Mixing and kneading ingredients
   - Fermentation
   - Punching down
   - Portioning
   - Rounding
   - Shaping
   - Proofing
   - Baking
   - Cooling and storing

PAGE 456 CHAPTER ACTIVITIES ANSWERS

- **Start It Up:** Each answer will be a bit different. Students will need to research this topic for more information than is found in the text.

  Teacher note:

  - This article is available as an audible article through the podcast on the Splendid Table site: *https://www.splendidtable.org/recipes/how-to-make-your-own-sourdough-starter*
  - *https://www.nytimes.com/2016/03/23/dining/sourdough-starter-bread-baking.html?_r=0*

- **The Yeast Colony:** Students should take notes while observing the changes in the yeast. Students should compare the before and after growth.

- **Which Weigh?:** Bread dough becomes less dense as it works through the 10 steps—yeast "eats" the sugars and releases CO_2 to make the dough feel lighter. However, the actual mass will only change during baking, and the heat chemically alters the matter of the bread.

  Teacher note: Students can design experiments involving several concepts to teach-back to elementary students. For example: *https://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching/eecd/domains%20of%20child%20development/science/kitchen%20science.pdf*

- **Yeast Bread Investigation:** Each group's PowerPoint presentation will be different but should answer all of the questions in-depth based on their visit to a local bakery.

- **What's Your Bread and Butter?:** Student responses will vary. When tasting the different types of yeast breads made by their group and the other groups, students should take notes on the taste, quality, and crust of each yeast bread.

- **Make-or-Buy Analysis:** Student responses will vary but should be well written and concise. In particular, with yeast breads, time is a factor, and that means paying for labor for longer periods of time. The ingredients to make bread are typically inexpensive, but labor is the determining factor, along with facility and equipment needs to allow for bread making and baking. Premade products are more expensive but do not rely on time and labor as the factor. Students should refer back to content referencing how to cost products and labor as part of the analysis.

PAGE 457 EXAM PREP ANSWERS

1. A (p. 448)
2. A (p. 452)
3. B (p. 449)
4. D (p. 452)
5. D (p. 450)
6. B (p. 452)
7. A (p. 452)
8. A (p. 449)
9. C (p. 449)
10. A (p. 450)

Chapter 20
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers cakes and pie, including batters, icing, soufflés, pastry doughs, blind baking, laminated dough, and *pâte à choux* and phyllo dough.

CHAPTER OBJECTIVES

20.1 Prepare cake batter using a variety of methods.

20.2 Identify the functions of icings and determine which are best suited for different baked goods.

20.3 Prepare various icings.

20.4 Prepare various soufflés.

20.5 Prepare pie dough using the 3-2-1 method.

20.6 Explain what it means to bake blind.

20.7 Prepare laminated dough.

20.8 Prepare *pâte à choux* and phyllo dough.

ADVANCE PREPARATION

Review	• Chapter 20, pages 462–487 • Unit case study, "Baking and Desserts," pages 444–445
Contact	• Baker • Chocolatier
Prepare	• Supplies and ingredients from the chosen activities for the lesson plan

CHAPTER BREAKDOWN

PAGE 464 INTRODUCTION

Discuss

- Cakes are tender, baked batter desserts.

PAGE 464 CAKE BATTERS

Reinforce and Review

- Cake is a sweet baked food made from a dough or thick batter.
- A batter is a semiliquid mixture containing flour, liquid, and other ingredients.

Discuss

- What are cake batters?

Vocabulary Review

- **Cake:** A sweet baked food made from a dough or thick batter usually containing flour and sugar and often shortening, eggs, and a leavening agent (such as baking powder).
- **Batter:** A semiliquid mixture containing flour, liquid, and other ingredients. Unlike a dough, which is stiff but pliable, a batter is usually thin enough to be poured. A batter typically has more fat and sugar than a dough.

Customized Instruction

Learning disabled	Make a list of as many cakes as you can. Which items have you tried? Which items do you plan to try to make? Create a vision board with images of cakes that you want to prepare in the future.
Academically gifted	Create a presentation that shows the science behind going from batter to baked cake. Use visual aids to show the action in each step, and present to the class. Teacher note: Can be modified to multitier small groupings for whole-class activity. Allow students to direct their research on the Internet.
ELL	Most cake batters are as tasty as the cake. However, consuming raw eggs puts you at risk of contracting a foodborne illness. Write a commercial explaining the dangers of consuming cake and cookie batters as a public service announcement. For example, #justsaynotorawdough.

In-Class Activity: Science

Leavening Experiment

Baking soda and acid leavening begin to react immediately upon mixing. Mix 1 tablespoon of buttermilk with 1 teaspoon of baking soda. Time the duration of the reaction. How long did it take until the bubble stopped forming? How far in advance of baking can leavenings be activated?

PAGES 464–465 CATEGORIES OF CAKE

Reinforce and Review

- Cakes fall into two categories: high-fat cakes and egg-foam cakes.
- There are three methods for preparing cake batters: creaming method, foaming method, and two-stage method.

Discuss

- What is the difference between high-fat cakes and egg-foam cakes? Give an example of each type.
- What are the three methods for preparing cake batters? Give an example of a cake for each cake batter.
- Ask students what their favorite cake is and why.

Vocabulary Review

- **High-fat cakes:** Often referred to as creamed cakes; the fat often used in these cakes is a solid fat like butter or shortening. High-fat cakes are often creamed when mixed. Examples of high-fat cakes include butter cake and pound cake.
- **Egg-foam cakes:** These cakes often contain no fat or a small amount of liquid fat like melted butter or oil, and they often contain some form of eggs (usually whole eggs or separated eggs). Some egg-foam cakes use only the yolks or the whites of the eggs. Examples of egg-foam cakes include angel food cake, sponge cake, chiffon cake, or genoise (an Italian sponge cake).
- **Creaming method:** Method for preparing cake batter in which the fat and sugar are creamed together to produce a very fine crumb and a dense, rich texture. A yellow butter cake is an example of a cake made with the creaming method.
- **Foaming method:** Method for preparing cake batter in which a foam of whole eggs, yolks only, or whites only provides the structure for cakes with a light texture, such as angel food and chiffon cakes.
- **Two-stage method:** Method for preparing cake batter in which a softened or melted shortening is combined with the dry ingredients, one-half of the recipe's liquid is then added and blended in, and the remaining liquid is then gradually added to the mixture. High-ratio cakes made using the two-stage method have a very fine crumb and are quite moist. Devil's food cake is one popular item prepared with the two-stage method.
- **High-ratio cakes:** Cakes that contain more sugar than flour in the recipe. In other words, there is a higher ratio of sugar to flour than in other doughs and batters.

Customized Instruction

Learning disabled	Create a graphic organizer with images to illustrate the following key-term definitions: • **High-fat cakes:** Often referred to as creamed cakes; the fat often used in these cakes is a solid fat like butter or shortening. High-fat cakes are often creamed when mixed. Examples of high-fat cakes include butter cake and pound cake. • **Egg-foam cakes:** These cakes often contain no fat or a small amount of liquid fat like melted butter or oil, and they often contain some form of eggs (usually whole eggs or separated eggs). Some egg-foam cakes use only the yolks or the whites of the eggs. Examples of egg-foam cakes include angel food cake, sponge cake, chiffon cake, or genoise (an Italian sponge cake). • **Creaming method:** Method for preparing cake batter in which the fat and sugar are creamed together to produce a very fine crumb and a dense, rich texture. A yellow butter cake is an example of a cake made with the creaming method. • **Foaming method:** Method for preparing cake batter in which a foam of whole eggs, yolks only, or whites only provides the structure for cakes with a light texture, such as angel food and chiffon cakes. • **Two-stage method:** Method for preparing cake batter in which a softened or melted shortening is combined with the dry ingredients, one-half of the recipe's liquid is then added and blended in, and the remaining liquid is then gradually added to the mixture. High-ratio cakes made using the two-stage method have a very fine crumb and are quite moist. Devil's food cake is one popular item prepared with the two-stage method. • **High-ratio cakes:** Cakes that contain more sugar than flour in the recipe. In other words, there is a higher ratio of sugar to flour than in other doughs and batters.
Academically gifted	How can the foaming method go wrong? Perform research to find the ways to troubleshoot cakes that fail to make the quality standard cut, and collect your research into a brief report or create a poster.
ELL	For each of the mixing methods for cakes, gather a recipe to match the method, and create posters that illustrate the ingredients and instructions with found or created images. Perform research to see the methods in action by finding video clips and using screenshots to build a visual organizer. Use the following prompts to start your research: • Cakes fall into two categories: high-fat cakes and egg-foam cakes. • There are three methods for preparing cake batters: creaming method, foaming method, and two-stage method.

In-Class Activity: Physical

Good Batter, Bad Batter

Overmixing batter causes tunnels to form in the product. Divide the class into groups. One group should make a "bad example" muffin with overmixed batter. Slice it open and observe the tunnels. Another group should make a "good example" of a properly mixed muffin. Slice it open to observe the crumb. Compare the two products. Students should sample both muffins and compare the tenderness.

Alternative: Instead of using a quick bread, choose a variety of methods for cake preparation.

PAGES 465–470 ICING

Reinforce and Review

- Icings are sweet coatings for cakes and other baked goods.
- The types of icing are buttercream, fondant, foam, fudge, ganache, royal icing, and glaze.
- Icing serves three main purposes: improve the qualities of the cake by forming a protective coating around it, contribute flavor and richness, and improve appearance.
- Essential Skills: Prepare Simple Buttercream Icing describes how to prepare buttercream icing.
- Essential Skills: Prepare Foam Icing describes how to prepare foam icing.
- Essential Skills: Prepare Fudge Icing describes how to prepare fudge icing.
- Essential Skills: Prepare Ganache Icing describes how to prepare ganache icing.
- Essential Skills: Prepare Glaze Icing describes how to prepare glaze icing.
- Essential Skills: Prepare Royal Icing describes how to prepare royal icing.
- Video: Preparing Simple Buttercream Icing. For a video on preparing simple buttercream icing, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- The generic term "topping" is sometimes substituted for icing, frosting, glaze, sauce, and garnish. Do you think all these things should be lumped into one term?
- Is it more efficient or less so to lump all the terms together?
- Ask students what their favorite icing is?

Vocabulary Review

- **Icings:** Also called frostings, these are sweet coatings for cakes and other baked goods. Icings have three main functions: (1) they improve the keeping qualities of the cake by forming a protective coating around it, (2) they contribute flavor and richness, and (3) they improve appearance.
- **Buttercream:** A very popular icing made of sugar and fat (usually butter or shortening, although shortening often has an unpleasant mouthfeel). Buttercream is most often used on cakes in different colors and flavors. It should be used at room temperature.
- **Foam icing:** Also called boiled icing, foam icing is made with hot sugar syrup. Bakers often use it on cakes such as lemon or chocolate. It should be used the day it is made and is applied in thick layers.
- **Fondant:** Smooth and creamy icing that is cooked by combining sugar, water, and a glucose or a corn syrup. It becomes a shiny, nonsticky coating when dried. Often purchased as a convenience product, fondant is available in different thicknesses.
- **Fudge icing:** Icing made using cocoa/chocolate, sugar, butter, and a liquid (water or milk). Fudge icing should be applied while it is still warm. Fudge holds well in storage.
- **Ganache:** A French term referring to a smooth mixture of chocolate and cream. Ganache is used to cover cakes or tortes, and is also used to make truffles.
- **Glaze icing:** This icing can be a simple corn syrup glaze, or it can include a fruit or chocolate. Glazes add moisture, shine, and sometimes flavor to bakery products. They are usually drizzled rather than spread. Glaze is often purchased as a convenience product.
- **Royal icing:** Also called decorator's icing, royal icing is almost always used only for decorations. It dries brittle and is an uncooked icing. It is made from confectioners' sugar and egg whites, and is colored with food coloring if desired.

Customized Instruction

Learning disabled	Create a graphic organizer with images to illustrate the definitions from the key terms listed below: • **Icings:** Also called frostings, these are sweet coatings for cakes and other baked goods. Icings have three main functions: (1) they improve the keeping qualities of the cake by forming a protective coating around it, (2) they contribute flavor and richness, and (3) they improve appearance. • **Buttercream:** A very popular icing made of sugar and fat (usually butter or shortening, although shortening often has an unpleasant mouthfeel). Buttercream is most often used on cakes in different colors and flavors. It should be used at room temperature. • **Foam icing:** Also called boiled icing, foam icing is made with hot sugar syrup. Bakers often use it on cakes such as lemon or chocolate. It should be used the day it is made and is applied in thick layers. • **Fondant:** Smooth and creamy icing that is cooked by combining sugar, water, and a glucose or a corn syrup. It becomes a shiny, nonsticky coating when dried. Often purchased as a convenience product, fondant is available in different thicknesses. • **Fudge icing:** Icing made using cocoa/chocolate, sugar, butter, and a liquid (water or milk). Fudge icing should be applied while it is still warm. Fudge holds well in storage. • **Ganache:** A French term referring to a smooth mixture of chocolate and cream. Ganache is used to cover cakes or tortes, and is also used to make truffles. • **Glaze:** This icing can be a simple corn syrup glaze, or it can include a fruit or chocolate. Glazes add moisture, shine, and sometimes flavor to bakery products. They are usually drizzled rather than spread. Glaze is often purchased as a convenience product. • **Royal icing:** Also called decorator's icing, royal icing is almost always used only for decorations. It dries brittle and is an uncooked icing. It is made from confectioners' sugar and egg whites, and is colored with food coloring if desired.
Academically gifted	Icings made from meringues are delicious, but can pose some food safety concerns. Research the different methods for preparing meringue-based icings, and how to combat risk of foodborne illness. Prepare a report, presentation, or poster to reflect your findings.

(continued)

ELL	Cake decorating failures happen. Research online for images or stories that reflect cake decoration disasters. Find images that reflect the different types of icing or the key terms from the section. Take notes on your research, and create a graphic organizer with images to reflect what you learned. Match the cake decorating disasters with good examples of decoration with various icings, including: • **Icings:** Also called frostings, these are sweet coatings for cakes and other baked goods. Icings have three main functions: (1) they improve the keeping qualities of the cake by forming a protective coating around it, (2) they contribute flavor and richness, and (3) they improve appearance. • **Buttercream:** A very popular icing made of sugar and fat (usually butter or shortening, although shortening often has an unpleasant mouthfeel). Buttercream is most often used on cakes in different colors and flavors. It should be used at room temperature. • **Foam icing:** Also called boiled icing, foam icing is made with hot sugar syrup. Bakers often use it on cakes such as lemon or chocolate. It should be used the day it is made and is applied in thick layers. • **Fondant:** Smooth and creamy icing that is cooked by combining sugar, water, and a glucose or a corn syrup. It becomes a shiny, nonsticky coating when dried. Often purchased as a convenience product, fondant is available in different thicknesses. • **Fudge icing:** Icing made using cocoa/chocolate, sugar, butter, and a liquid (water or milk). Fudge icing should be applied while it is still warm. Fudge holds well in storage. • **Ganache:** A French term referring to a smooth mixture of chocolate and cream. Ganache is used to cover cakes or tortes, and is also used to make truffles. • **Glaze:** This icing can be a simple corn syrup glaze, or it can include a fruit or chocolate. Glazes add moisture, shine, and sometimes flavor to bakery products. They are usually drizzled rather than spread. Glaze is often purchased as a convenience product. • **Royal icing:** Also called decorator's icing, royal icing is almost always used only for decorations. It dries brittle and is an uncooked icing. It is made from confectioners' sugar and egg whites, and is colored with food coloring if desired.

PAGES 470–471 SOUFFLÉS

Reinforce and Review

- Soufflés are a baked light, fluffy treat made with eggs, flour, and flavoring.
- Soufflés may be sweet or savory.
- The main leavening agent for soufflés is air.
- Essential Skills: How to Make a Dessert Soufflé lists the steps to prepare a soufflé.

Discuss

- If you were able to make soufflés with the class, did the students enjoy the experience?
- Ask students if they have ever had a soufflé. Did they like it?

In-Class Activity: Science

The Soufflé Experiment: The Science Inside

Soufflés rely on a formula where the ingredients work together with scientific principles to make the dish a success. Eggs are separated into whites and yolks, and whipped separately. The whites are whipped to incorporate air into the structure, which is mostly water. Egg whites do not whip well when mixed with fat—another reason to separate the yolks. Another component is a base. This gives the soufflé enough stability to have a structure, without working against the whipped egg whites and air. Bases can be made from a variety of ingredients: béchamel for savory soufflés, or pastry cream for more sweet applications. The yolks are whipped and used in the base for pastry creams, or can be thickened with roux or cornstarch to become the base itself. The other component is the preparation of the soufflé baking vessel, often called a soufflé dish. It is key to line the dish with a fat, like butter, and then to coat the fat with another stabilizer to create the outer structure, like sugar or finely grated cheese. Some chefs even line the dish with a cylinder of parchment paper to create a mold for the soufflé to rise into, like training wheels providing extra support on a bike. The last component is the conditions and equipment. Very hot temperatures make the science magic happen, but the delicate nature of the soufflé requires gentle handling, and care of handling the oven door as well. It is necessary to handle the baked soufflé with the equivalent of "whisper and tip-toe" quiet hands—one loud sound or bang of the door can cause the soufflé to fall immediately.

Formula:
Egg whites
Egg yolks
Base
Preparation of vessel
Handling techniques and equipment needs

Use the above formula to research several different recipes. What items represent each variable in the formula?

Teacher note:

- This activity accompanies the soufflé research activity in the student guide.

For additional information:

- *http://www.npr.org/templates/story/story.php?storyId=19004631* (audio version provided on the website)
- *https://www.nytimes.com/2015/10/11/magazine/all-rise-for-the-souffle.html?_r=0*
- *http://www.chicagonow.com/new-abides/2013/07/soap-souffle-a-microwave-science-experiment/*

Extra credit:

- *https://inst.eecs.berkeley.edu/~ee126/fa07/hw/hw5_fall07_ee126_soln.pdf*

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the steps in how to make a soufflé. Alternative: Ninety-nine problems and a soufflé is one. Research online to discover common problems with making soufflés and images to match the soufflé "fails." Create a graphic organizer to tell the story of the soufflé problems and how the user may have tried to fix or troubleshoot the issue. Keep notes on your findings.
Academically gifted	What is the historical trend for serving soufflés? When were they most popular? Is this item common in today's industry? Perform and compile research into a response.
ELL	Film the preparation and cooking of making a dessert soufflé, using the steps in the Essential Skills feature on page 471. Analyze the experience in a short response or video diary interview.

Knowledge Check Answers (Page 471)

1. The creaming method creams fat and sugar first, before liquid and dry ingredients are added. The foaming method involves mixing all batter ingredients at once. The two-stage method mixes fat with dry ingredients and a portion of the liquid, followed by the addition of the remaining liquid. (p. 465)
2. The three main functions of icing are to improve the qualities of the cake by forming a protective coating around it, contributing to flavor and richness, and improving appearance. (p. 465)
3. The main types of icing are buttercream, foam, fondant, fudge, ganache, glaze, and royal. (pp. 466–467)
4. Refer to the Essential Skills features on pages 467–470 for guidelines for preparing the main types of icing: buttercream, foam, fondant, fudge, ganache, glaze, and royal.
5. A soufflé is a baked, light, fluffy treat made with eggs, flour, and flavoring. (p. 470)

PAGES 472–473 **PASTRY DOUGHS**

Reinforce and Review

- Pie crusts are a special variety of pastry: tender, not kneaded, and flaky. Pie crusts are not leavened, so they remain flat.
- The cutting process of mixing solid fat into flour is the same process used when making biscuits and scones. The cutting keeps the fat in small pieces. During baking, the pieces melt, forming tiny divisions or layers, which are the flaked layers of fat in the finished product.
- If a pie crust bubbles up during baking, it is because air was trapped underneath it or within it. Good rolling, then weighing down the crust with filling, helps prevent this.
- Essential Skills: Making Pie Dough lists the steps for making pie dough.

Discuss

- "As American as apple pie." Have students heard this statement before reading it in the textbook? Have they ever eaten apple pie? Do they like apple pie?
- What technique is similar to the 3-2-1 pie dough method (biscuit rub-in method)? What things are similar or different in using this method to distribute fat?

Vocabulary Review

- **3-2-1 dough:** A basic pie dough that gets its name because it is made of three parts flour, two parts fat, and one part water (by weight). When it is properly made, the crust is flaky and crisp and often referred to as *pâte brisée* (paht breeze-AY).

Customized Instruction

Learning disabled	Make a list of as many types of pies as you can recall. Make a note on what type of pie crust and what type of filling is in each item on your list. Can you mix and match different fillings with different crusts? Write notes with your thoughts and potential pie innovations.
Academically gifted	Gluten-free baking facilities are a growing trend in the pastry world. Research how a facility becomes certified to advertise gluten-free products, and how a gluten-free operation might work to prevent allergen cross-contamination. Write a report with your findings. Teacher note: • *http://www.gfco.org/* • *https://www.beyondceliac.org/gluten-free-certification/* • *https://www.greatgfkitchens.org/*
ELL	Write a love letter to your favorite pie, using as many descriptive adjectives as possible to demonstrate why you love that particular type of pie. Create a poster from your letter, using found or created images to show your love of pie.

PAGE 474 **BLIND BAKING**

Reinforce and Review

- Blind baking is the procedure for preparing a prebaked pie shell.
- A few tiny air holes pierced in the crust helps when baking an unfilled pie shell. So do weights.
- Essential Skills: Blind Baking a Pie Crust lists the steps for blind baking a pie crust.

Discuss

- What is blind baking?

Vocabulary Review

- **Blind baking:** The procedure for preparing a prebaked pie shell. Dough is prepared, rolled out, fit into the pan, and then docked (or pierced) in several places with a fork or docker. It is then covered with parchment paper and baked with an empty pie pan, baking weights, or even dry rice or beans on top of it to keep the crust nice and flat as it bakes. Once the pie shell is baked, it can be filled with custard, pudding, or fresh fruit filling. These are fillings that will not be cooked in the shell; they are precooked as necessary. The pie is then refrigerated to set and served cold—often with whipped cream or meringue on top. Examples include chocolate cream pie, banana cream pie, and lemon meringue.
- **Docked:** Pierced with a fork before baking; pie crusts are docked in order to let the steam escape, so that the crust does not puff up while baking.

Customized Instruction

Learning disabled	What happens when you don't blind bake pie shells or dock the crust? Research what happens when you don't follow the guidelines, and create a poster with images to show the resulting "fails." Alternative: Have students include images of both failures and successes in following the guidelines for blind baking and docking.
Academically gifted	Research the history of pie. Write a report on your findings. Teacher note: • *http://www.piecouncil.org/Events/NationalPieDay/HistoryOfPies*
ELL	Film the *mise en place* and practice of blind baking and docking a pie crust, using the guidelines found on page 474.

PAGES 475–478 **LAMINATED DOUGH**

Reinforce and Review

- Students will note that many of the same ingredients are used in pie crust and pastry dough.
- The difference between the different foods are not in the ingredients. Mixing order and method make a difference, as do handling techniques. Even temperature, humidity, and equipment make a difference.
- Essential Skills: Making Roll-In Dough lists the steps for making roll-in dough.
- Essential Skills: Performing a "Three Fold" in Croissant and Danish Dough describes the process.
- Video: Making Roll-in Dough. For a video on making roll-in dough, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Can the students think of any examples of puff pastry used for a savory dish?
- What items could be made with roll-in dough? For example, cinnamon roll dough uses a basic yeast dough preparation, but could also be made with this method.

Vocabulary Review

- **Roll-in dough:** Also called laminated dough; with this method, the dough is rolled into a rectangle, folded into thirds, spread with butter, chilled, and then rolled again. Roll-in dough is used to make Danish, croissants, and puff pastry.
- **Puff pastry:** An elegant bakery product, also called *pâte feuilletée* (paht PHOO-e-tay) (*feuilletée* means squares), made with roll-in (or laminated) dough. Puff pastry can be used in both sweet and savory applications.
- ***Pâte feuilletée:*** Another name for puff pastry; used in both sweet and savory applications. *Feuilletée* means squares.

Customized Instruction

Learning disabled	Using paper or real dough, practice rolling and performing each step to making roll-in dough, performing a "three fold" and performing a "four fold." Snap a photo or short video to document each step of your practice, and use screenshots or images with notes to create a graphic organizer that shows each step and any notes or observations as you are performing the tasks.
Academically gifted	Research the history of Beef Wellington. Create a recipe and presentation to show the steps of the savory application of the pastry dough.
ELL	Create videos to show how to perform the three fold and the four fold for roll-in dough, using the steps in the Essential Skills features found on pages 476–478.

PAGES 479–481 | ***PÂTE À CHOUX* AND PHYLLO DOUGH**

Reinforce and Review

- Phyllo dough is very thin, unleavened dough.
- *Pâte* à *choux* is an egg batter–type pastry.
- Essential Skills: Prepare Phyllo Dough Sheets for Use lists the steps for preparing phyllo dough sheets.
- Essential Skills: Prepare Éclair Paste or *Pâte* à *Choux* lists the steps on how to prepare the dish.

Discuss

- Have the students tasted sweets made with phyllo dough?

Vocabulary Review

- **Phyllo dough:** A very thin, unleavened dough used for pastries such as baklava.
- ***Pâte à choux***: A pastry dough made by combining water (or another liquid), butter, flour, and eggs into a smooth batter. Some familiar desserts that use *pâte à choux* include éclairs, cream puffs, and profiteroles (pro-FIT-uh-rolls).
- **Profiteroles:** Small round pastries made from *pâte à choux* filled with ice cream.

Customized Instruction

Learning disabled	Using paper or real dough, practice each step to preparing phyllo dough sheets for use. Snap a photo or film a short video to document each step of your practice, and use screenshots or images with notes to create a graphic organizer that shows each step and any notes or observations as you are performing the tasks. Alternative: Complete the task by preparing *pâte à choux,* using real ingredients.
Academically gifted	Research a variety of applications for *pâte à choux,* including sweet and savory options. Develop recipes and makeup diagrams for each, and create posters with instructions for the items using images to show each step.
ELL	Film the preparation and proposed steps to making *pâte à choux.* Prepare the item, capturing each step with the matching action steps. Create a graphic organizer from your video with screenshots to match each step. Write a short response with a summary of your demonstration.

Knowledge Check Answers (Page 481)

1. 3-2-1 dough is three parts flour, two parts fat, and one part water.
2. Baking blind is when you bake a pie shell for filling later. It is covered and can't be observed during baking. (p. 474)
3. With the roll-in dough method, also called laminated dough, the dough is rolled out into a large rectangle, then folded over in thirds, spread with butter, chilled, and rolled out again. (p. 475)
4. To make *pâte* à *choux,* combine water, butter, flour, and eggs into a smooth batter. (p. 479)

PAGE 481 CASE STUDY FOLLOW-UP ANSWERS: "BAKING AND DESSERTS"

1. Students will have their own ideas. With the delicate, labor-intensive preparation and need for timely serving, this might not be the best dessert choice. However, there might be students who make a strong case in favor of offering a soufflé, which is a high-end dessert selection. Other components to consider include the level of expertise of the staff, the facilities, and the equipment, which all require very specific and rigid conditions to create a perfect soufflé.
2. Each student's answer and opinion will be different. Students may need to research different pie and cake options. Students should consider the ingredients, preparation needed, and cooking time before making a decision. Fruit pies are always popular and can be seasonal. And many restaurants choose to offer some form of chocolate dessert, which would satisfy the cake selection.

PAGE 482 CHAPTER ACTIVITIES ANSWERS

- **Let Them Eat Cake:** Students will need to do online research. Cakes date back to ancient times. Making cakes used to be labor- and time-intensive. Nowadays, cake making is much easier.
- **Will It Rise?:** This is a good, simple activity. Baking soda and baking powder are not the same. Although both are leaveners, chemically they are very different. Students should write down their observations of each batch of muffins.
- **Converting Measurements:**

  You first need to find the conversion factor for the recipe. To do so, divide your desired yield (40 lb) by the recipe yield (8 lb):

  40 ÷ 8 = 5

  The conversion factor is 5.

Ingredients	Original Recipe	Desired Recipe (original recipe × conversion factor of 5)
Butter	2 lb	10 lb
Sugar	2 lb	10 lb
Eggs	2 lb	10 lb
Cake flour	2 lb	10 lb
Vanilla extract	4 tsp	40 tsp, or 6.7 oz (rounded) (3 tsp = 1 tbsp; 40 ÷ 3 = 13.333 tbsp; 2 tbsp = 1 oz; 13.333 ÷ 2 = 6.666 oz)

- **Yum…Cakes and Pies:** Each group will have their own ideas for the menu. Depending on locale and season, one of the desserts might be a specialty dessert, such as red velvet cupcakes or key lime tartlets. Students may choose items freely; however, the *mise en place* and/or costing must reflect the proper preparation steps.
- **Cupcake Wars:** Each group will have their own ideas for the type of cupcake they will make. Communication is key for this activity, as well as proper directions from the baker and assistant baker.
- **3-2-1:** Students need to research online two alternative recipes for pie crust and print out the recipes. These may address crumb crusts, flaky crusts, mealy crusts, and cookie crusts.

PAGE 483 EXAM PREP ANSWERS

1. A (p. 472)
2. B (p. 464)
3. A (p. 465)
4. B (p. 470)
5. C (p. 475)
6. D (p. 474)
7. D (p. 479)
8. B (p. 466)
9. B (p. 465)
10. C (p. 474)

Chapter 21
Teacher's Companion

CHAPTER OVERVIEW

This chapter discusses chocolate, including the preparation of chocolate and chocolate products, storing chocolate, and tempering chocolate. Also, the chapter discusses custards, frozen desserts, poached fruit and tortes, and dessert sauces and cream.

CHAPTER OBJECTIVES

21.1 Explain how chocolate is made, including chocolate liquor, cocoa butter, and cocoa powder.

21.2 Identify storing procedures for chocolate.

21.3 Execute the procedure for melting chocolate.

21.4 Prepare baked and stirred custards, and explain how the products are used in desserts.

21.5 Prepare various types of frozen desserts.

21.6 Prepare various poached fruits and tortes.

21.7 Describe various types of dessert sauces.

ADVANCE PREPARATION

Review	• Chapter 21, pages 488–507 • Unit case study, "Baking and Desserts," pages 444–445
Contact	• Chocolatier • Dessert/pastry chef
Prepare	• Chocolate samples

CHAPTER BREAKDOWN

PAGE 490 INTRODUCTION

Discuss

- Chocolate is actually a South American bean product that has flavorful solids and rich fat.
- Chocolate is a food that evokes romance, mystery, and even love.
- Chocolate is usually included on any dessert menu.

PAGES 490–493 CHOCOLATE

Reinforce and Review

- Chocolatiering is a science, skill, craft, art, and entire industry.
- A chef can build an entire career on chocolate.
- Cocoa powder is shelf-stable, whereas cocoa butter itself is vulnerable to deterioration.
- Essential Skills: Tasting Chocolate lists the guidelines to follow when tasting chocolate.

Discuss

- What would happen if you heated chocolate all at once instead of following the tempering process?
- What is the difference between unsweetened and semisweet chocolate?

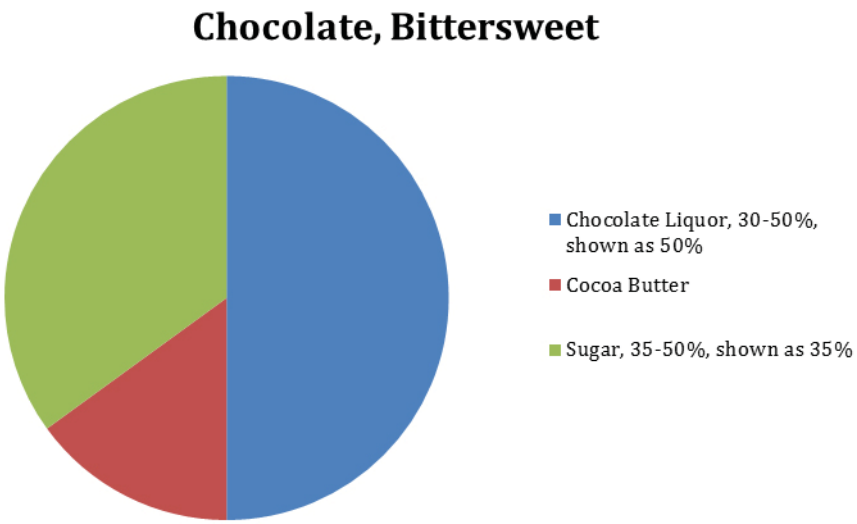
Vocabulary Review

- **Nibs:** Small pieces of cocoa beans that are the basis of all cocoa products.
- **Chocolate liquor:** An unsweetened paste made up of crushed cocoa beans.
- **Chocolate, bittersweet:** Solid chocolate made with 30–50 percent chocolate liquor, 15 percent cocoa butter, and 35–50 percent sugar. Bittersweet chocolate is interchangeable with semisweet chocolate and may have other ingredients, such as nuts, fillings, stabilizers, emulsifiers, and/or preservatives.
- **Chocolate, semisweet:** Solid chocolate made with about 45 percent chocolate liquor, 15 percent cocoa butter, and 40 percent sugar. Semisweet chocolate is interchangeable with bittersweet chocolate and may have added ingredients.
- **Chocolate, unsweetened:** Solid chocolate made with about 95 percent chocolate liquor, 5 percent cocoa butter, and 5 percent sugar and other flavorings.
- **Cocoa:** Chocolate from which all but 10–25 percent of the cocoa butter has been removed.

Customized Instruction

Learning disabled	Create a graphic organizer with images to illustrate the key-term definitions, listed below: • **Nibs:** Small pieces of cocoa beans that are the basis of all cocoa products. • **Chocolate liquor:** An unsweetened paste made up of crushed cocoa beans. • **Chocolate, bittersweet:** Solid chocolate made with 30–50 percent chocolate liquor, 15 percent cocoa butter, and 35–50 percent sugar. Bittersweet chocolate is interchangeable with semisweet chocolate and may have other ingredients, such as nuts, fillings, stabilizers, emulsifiers, and/or preservatives. • **Chocolate, semisweet:** Solid chocolate made with about 45 percent chocolate liquor, 15 percent cocoa butter, and 40 percent sugar. Semisweet chocolate is interchangeable with bittersweet chocolate and may have added ingredients. • **Chocolate, unsweetened:** Solid chocolate made with about 95 percent chocolate liquor, 5 percent cocoa butter, and 5 percent sugar and other flavorings. • **Cocoa:** Chocolate from which all but 10–25 percent of the cocoa butter has been removed.
Academically gifted	What does fair trade or ethically sourced or grown mean? Perform research on these terms as they relate to chocolate or cocoa, and provide a presentation, with visual aids, to the class. Teacher note: • *http://www.slavefreechocolate.org/children-slavery-cocoa/*
ELL	Create a poster or diagram with images and pie graphs of each of the key terms that follow, to demonstrate the percentage makeup for each type. Using the key-term definitions listed below, create the pie graphs to show what each item is composed of. For example, draw a circle to reflect the following percentages as pieces of the pie. For ranges, like the 30–50%, allow students to shade or mark the value's range, but designate the higher value as the piece.

(continued)

ELL *(cont)*	Sample graph:  • **Chocolate, bittersweet:** Solid chocolate made with 30–50 percent chocolate liquor, 15 percent cocoa butter, and 35–50 percent sugar. • **Nibs:** Small pieces of cocoa beans that are the basis of all cocoa products. • **Chocolate liquor:** An unsweetened paste made up of crushed cocoa beans. • **Chocolate, bittersweet:** Solid chocolate made with 30–50 percent chocolate liquor, 15 percent cocoa butter, and 35–50 percent sugar. Bittersweet chocolate is interchangeable with semisweet chocolate and may have other ingredients, such as nuts, fillings, stabilizers, emulsifiers, and/or preservatives. • **Chocolate, semisweet:** Solid chocolate made with about 45 percent chocolate liquor, 15 percent cocoa butter, and 40 percent sugar. Semisweet chocolate is interchangeable with bittersweet chocolate and may have added ingredients. • **Chocolate, unsweetened:** Solid chocolate made with about 95 percent chocolate liquor, 5 percent cocoa butter, and 5 percent sugar and other flavorings. • **Cocoa:** Chocolate from which all but 10–25 percent of the cocoa butter has been removed. Teacher note: For creating graphs using computer programs, consult: • *https://coe.unm.edu/uploads/docs/coe-main/tutorials/charts-document.pdf*

Homework Activity: Writing

Inside *Charlie and the Chocolate Factory*

Refer to Roald Dahl's book, *Charlie and the Chocolate Factory,* for passages that describe chocolates and candies in detail. In small groups, allow students to brainstorm how to recreate certain confections by drafting standardized recipes and product specifications for preparation and presentation.

For additional resources:

- *http://www.roalddahl.com/roald-dahl/stories/a-e/charlie-and-the-chocolate-factory*

PAGE 493 **CHOCOLATE STORAGE**

Reinforce and Review

- Bloom on chocolate does not look good, but it is not harmful. It can be caused by humid weather, or by freezing and thawing chocolate.

Discuss

- Why should you avoid refrigerating chocolate if possible?
- What does a bloom indicate on chocolate?

Vocabulary Review

- **Bloom:** A white coating that sometimes appears on the surface of chocolate, indicating that some of the cocoa butter has melted and then recrystallized on the surface.

In-Class Activity: Physical

Blooming Stations

Set up stations for causing chocolate to "bloom": a steam station, an ice station, a cold-air station, and a warm-air station. Expose one freshly made chocolate drop to each condition. Note your findings and compare with the rest of the class.

PAGE 494–495 **TEMPERING CHOCOLATE**

Reinforce and Review

- A double broiler works to protect the chocolate from overheating. Double boilers heat with steam that transfers heat from the stove-top pan to the upper pan or bowl.
- The steam rises when the water reaches 212°F (100°C), gently warming the upper pan to this degree and not beyond.

- The trick to using the double boiler is making sure the lower pan does not boil dry. If this happens, the entire system can overheat.
- It is important to carefully and closely monitor temperature and warming of chocolate?
- Essential Skills: Seeding Method for Tempering Chocolate describes the method for tempering chocolate.
- Video: Seeding Method for Tempering Chocolate. For a video on the seeding method for tempering chocolate, please go to: *Textbooks.Restaurant.org/Videos.*

Discuss

- Why is it important to monitor the temperature and warming of chocolate?
- What is the process of tempering chocolate?

Vocabulary Review

- **Tempering:** Process in which cooks melt chocolate by heating it gently and gradually, ensuring that the two types of fat found in the chocolate melt smoothly, harden evenly, and have a good shine.

Customized Instruction

Learning disabled	Create a poster or graphic organizer with images to show how to properly store chocolate to prevent bloom, using page 493, and how to temper chocolate, using pages 494–495 as a guideline.
Academically gifted	Research the career of the master chocolatier. Perform research, and create a report with your findings.
ELL	Create a short video or comic book starring the greatest villains to chocolate: bloom and seizing. Research the characteristics of chocolate blooming and seizing to show how chocolate, the hero, can be attacked by the villains. The video must define both bloom and seizing, and explain how to defeat or prevent these events from occurring to chocolate.

Knowledge Check Answers (Page 495)

1. Cocoa butter is made by extracting the fat from cocoa beans. (492)
2. Chocolate should be stored by wrapping it carefully and keeping it in a cool, dry, well-ventilated area. (p. 493)
3. Tempering is carefully and slowly melting chocolate over a double boiler. (p. 494)

PAGE 496–498 CUSTARDS

Reinforce and Review

- Custards are very delicate.
- Baked custards include pudding, flan, and cheesecake.
- Stirred custards include crème anglaise, puddings, and pastry creams.
- Video: Making Crème Anglaise (Vanilla Sauce). For a video on making crème anglaise, please go to: *Textbooks.Restaurant.org/Videos*.
- Essential Skills: Making Crème Anglaise (Vanilla Sauce) lists the steps for making crème anglaise.
- Essential Skills: Making *Crème Pâtissière* (Pastry Cream) lists the steps for making pastry cream.

Discuss

- What happens when custard curdles?

Vocabulary Review

- **Custard:** An egg and liquid mixture that is thickened by the coagulation of eggs and sometimes starch.
- **Curdle:** To form lumps, or curds, as a result of thickening and separating into liquids and solids.
- **Crème anglaise:** Stirred custard, also known as vanilla sauce, that is made with milk or cream, eggs or yolks, sugar, and vanilla, and often used as a dessert sauce or a base for French vanilla ice cream.
- **Pastry creams:** Also called *crème pâtissière*, pastry creams have greater density than custards and are frequently used as the filling for pastries such as éclairs. Pastry creams can also be used as a soufflé base, and are part of the *mise en place* for many kitchen desserts.
- **Bavarian creams:** Delicate dessert creams made by combining vanilla sauce, gelatin, and whipped cream. Bavarian creams can be used as single items or as fillings for a variety of pastries.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show how each of the following key terms is defined, using the ingredients to create a formula with the final product as the answer. For example: Egg + Liquid + Sometimes starch + Coagulation = Custard • **Custard:** An egg and liquid mixture that is thickened by the coagulation of eggs and sometimes starch. • **Curdle:** To form lumps, or curds, as a result of thickening and separating into liquids and solids. • **Crème anglaise:** Stirred custard, also known as vanilla sauce, that is made with milk or cream, eggs or yolks, sugar, and vanilla, and often used as a dessert sauce or a base for French vanilla ice cream.

(continued)

Learning disabled *(cont)*	• **Pastry creams:** Also called *crème pâtissière*, pastry creams have greater density than custards and are frequently used as the filling for pastries such as éclairs. Pastry creams can also be used as a soufflé base, and are part of the *mise en place* for many kitchen desserts. • **Bavarian creams:** Delicate dessert creams made by combining vanilla sauce, gelatin, and whipped cream. Bavarian creams can be used as single items or as fillings for a variety of pastries.
Academically gifted	Gelatin is a frequently used item to thicken certain sauces or custards. Research the types of gelatin and how to properly use each type. Use your research to create a training program for how to use gelatin in a variety of forms. Teacher note: • *https://opentextbc.ca/modernpastryandplateddesserts/*
ELL	Film the *mise en place* preparation and demonstration of making *crème pâtissière,* using the steps from the Essential Skills feature found on page 498. Then, provide a commentary to your own demo by comparing and contrasting the steps for *crème pâtissière* to the other key-term sauces, listed below: • **Custard:** An egg and liquid mixture that is thickened by the coagulation of eggs and sometimes starch. • **Curdle:** To form lumps, or curds, as a result of thickening and separating into liquids and solids. • **Crème anglaise:** Stirred custard, also known as vanilla sauce, that is made with milk or cream, eggs or yolks, sugar, and vanilla, and often used as a dessert sauce or a base for French vanilla ice cream. • **Pastry creams:** Also called *crème pâtissière*, pastry creams have greater density than custards and are frequently used as the filling for pastries such as éclairs. Pastry creams can also be used as a soufflé base, and are part of the *mise en place* for many kitchen desserts. • **Bavarian creams:** Delicate dessert creams made by combining vanilla sauce, gelatin, and whipped cream. Bavarian creams can be used as single items or as fillings for a variety of pastries.

PAGE 499 FROZEN DESSERTS

Reinforce and Review

- Gelato is sold in stores, little shops, carts, and stands in Italy, its country of origin. There are usually several flavors laid out in slabs in a temperature-controlled display case.
- The most popular flavors of gelato include chocolate, lemon, pistachio, cherry, and spumoni.
- Some frozen desserts are low in fat, but others are quite high in fat.

Discuss

- Do people only eat frozen desserts when the weather is hot?
- Ask students to discuss and describe their favorite types of frozen desserts.
- Have students verbally describe their own experiences with ice cream, sherbet, and other frozen desserts.

Vocabulary Review

- **Gelato:** A popular, Italian version of ice cream made with most of the same ingredients as ice cream, but without eggs. It is typically lower in fat and served at a slightly warmer temperature than ice cream.
- **Sherbet**: A frozen mixture of fruit juice or fruit purée that contains milk and/or eggs for creaminess, served as a dessert item.
- **Sorbet:** Frozen mixture of fruit juice or fruit purée with sweeteners and other flavors or additives but no dairy. Sorbet is served as a first course, palate cleanser between courses, or dessert.
- **Frozen yogurt:** In addition to the normal ice cream ingredients (sugar or other sweeteners, gelatin, coloring, and flavors), frozen yogurt contains yogurt and both freezes and melts more slowly than ice cream.

Customized Instruction

Learning disabled	Design a frozen dessert menu by listing as many flavors for each category as possible. Frozen desserts: • Gelato • Sherbet • Sorbet • Frozen yogurt
Academically gifted	Research the origins of gelato in Italy; describe how it was invented, how it is made, and what distinguished gelato from other frozen desserts. Research and compile your information in a brief report. Teacher note: • *http://www.whygelato.com/gelato101/history.asp*
ELL	Create a graphic organizer with images to show the characteristics and ingredients that define the following frozen desserts: • Gelato • Sherbet • Sorbet • Frozen yogurt

PAGES 500–501 POACHED FRUIT AND TORTES AND DESSERT SAUCES AND CREAMS

Reinforce and Review

- Poached fruit need not be poached only in water. Fruit juices, light wines, and liqueurs can be used to simmer fruit.
- A torte is different than a layer cake, and usually has fruit.
- Some sauces and creams make ordinary dessert foods definitely extraordinary.
- Many dessert sauces can be purchased ready-made.

Discuss

- Ask students if they use and enjoy fresh, ripe, flavorful fruit in season.
- Discuss fruits: what is grown locally, where it is harvested and purchased, and so on.

Vocabulary Review

- **Torte:** An elegant, rich, many-layered cake often filled with buttercream or jam.
- **Fruit sauces:** Sauces made with fruit that can be either raw or cooked, such as a coulis.
- **Fruit syrup:** A cooked, sugar-based juice used to garnish desserts and ice cream or to complement breakfast items. The sugar itself provides the thickening as the liquid boils and is reduced.
- **Caramel sauce:** Sugar cooked and caramelized with butter, sometimes with cream added. The greater the heat used, the darker the caramel. The longer the cooking time, the more the sugar crystal will develop, so the harder the caramel will be.
- **Butterscotch-flavored sauce:** A bit more full flavored than caramel sauce, made by adding vanilla and brown sugar to the recipe for caramel sauce.
- **Chocolate sauce:** A family of sauces and syrups with cocoa or melted chocolate as the base. Butter and corn syrup are usually added to maintain the flowing liquid quality of the sauce.
- **Sabayon or zabaglione:** A fragile foam of egg yolks, sugar, and marsala wine whipped constantly as it cooks over simmering water until thick and light.

Customized Instruction

Learning disabled	Create a graphic organizer with images to show the key-term definitions, found below: • **Torte:** An elegant, rich, many-layered cake often filled with buttercream or jam. • **Fruit sauces:** Sauces made with fruit that can be either raw or cooked, such as a coulis. • **Fruit syrup:** A cooked, sugar-based juice used to garnish desserts and ice cream or to complement breakfast items. The sugar itself provides the thickening as the liquid boils and is reduced. • **Caramel sauce:** Sugar cooked and caramelized with butter, sometimes with cream added. The greater the heat used, the darker the caramel. The longer the cooking time, the more the sugar crystal will develop, so the harder the caramel will be. • **Butterscotch-flavored sauce:** A bit more full flavored than caramel sauce, made by adding vanilla and brown sugar to the recipe for caramel sauce. • **Chocolate sauce:** A family of sauces and syrups with cocoa or melted chocolate as the base. Butter and corn syrup are usually added to maintain the flowing liquid quality of the sauce. • **Sabayon or zabaglione:** A fragile foam of egg yolks, sugar, and marsala wine whipped constantly as it cooks over simmering water until thick and light.
Academically gifted	Research traditional torte recipes from the master chefs, like Escoffier. Compare to more modern recipes or adaptations, and write a response comparing and contrasting the similarities and differences.
ELL	Create a dessert sauce battle by promoting each sauce with its own commercial or promotional poster, featuring its key strengths, flavor profiles, and uses.

Knowledge Check Answers (Page 501)

1. If a custard overheats, it curdles. (p. 496)
2. In ice cream, egg yolks contribute a buttery flavor, improved creaminess, and a softer texture. In sorbet, the whites help to maintain a creamy texture by not allowing the purée to freeze as solid. (p. 499)
3. Two fruits that are good for poaching are peaches and pears. (p. 500)
4. Crème anglaise, coulis, fruit syrup, caramel sauce, butterscotch-flavored sauce, chocolate sauce, sabayon, pastry cream, and Bavarian cream. (pp. 500–501)

Homework Activity: Literacy

The Legacy of Escoffier: Peach Melba and Pears Belle Hélène

Auguste Escoffier, the landmark chef, created peach Melba and pears belle Hélène, two desserts that were designed for popular celebrities of the day. Both feature poached fresh fruit. Have students create a simple dessert in honor of their favorite person—celebrity or not. They should describe the creation to the class or turn it in as written work.

PAGE 502 CASE STUDY FOLLOW-UP ANSWERS: "BAKING AND DESSERTS"

1. Each student will have a different opinion on this. There should probably be a chocolate offering, such as Italian chocolate cream cake, and perhaps something frozen, such as gelato. In addition, there are traditional Italian desserts such as ricotta pie.
2. Students will have different opinions on this, but they need a well-thought-out response. Choices might include flourless chocolate cake, chocolate layer cake, chocolate cheesecake, chocolate mousse pie, chocolate cream pie, or chocolate molten lava cake.

PAGE 503 CHAPTER ACTIVITIES ANSWERS

- **Is White Chocolate Really Chocolate?:** The students can research this information in greater detail than what is offered in the text. They should include the basic fact that white chocolate is not really chocolate. Sometimes it is made from cocoa butter; however, most commercially available white chocolate is made of hardened oil and flavorings.
- **A Bad Temper:** Student answers will vary, but students should take notes during each tempering process.
- **How Sweet Is Your Sorbet?:** Students will need to do online research to complete this activity. Sorbet contains no dairy, just fruit juice or purée with sweeteners and other flavors or additives. Sugar is responsible for sorbet's structure.

  For additional information:

  - *http://blog.ice.edu/2013/07/17/frozen-desserts-michael-laiskonis/*
  - *https://www.cooksillustrated.com/features/8701-the-science-behind-making-raspberry-sorbet-thats-creamy-and-smooth*
- **The Perfect Chocolate-Dipped Strawberry:** Direct students to create a process for accomplishing this task and to complete a report on the *mise en place*. Online research may assist in this endeavor.

- **Which Chocolate Is the Best for Your Operation?:** Students will need to do online research to complete this activity. They need to include eight product specifications and explain their decision.

  For additional information:

  - *http://fda-news.registrarcorp.com/2015/10/fda-chocolate-standard-identity/*
  - *www.fao.org/input/download/standards/67/CXS_087e.pdf*
  - *http://chocolate.mit.edu/science/*

- **Keeping Ice Cream Cold:** The students should include overrun, which is the introduction of air to the mix during freezing. It is usually expressed as a percentage, based on the increased volume the aerated ice cream has compared to the original mix. If ice cream is not stored at optimal temperatures, it can partially thaw and lose some of the air. If it refreezes, it will crystalize and lose its smoothness and creamy mouthfeel.

  For additional information:

  - *http://www.idfa.org/news-views/media-kits/ice-cream/tips-on-storing-handling-ice-cream*
  - *https://www.nfraweb.org/resources/articles/details.aspx?ArticleId=38*
  - *http://www.fbd.org/wp-content/uploads/2011/06/Dairy-food-storage.pdf*
  - *http://blog.ice.edu/2013/07/17/frozen-desserts-michael-laiskonis/*

PAGE 504 EXAM PREP ANSWERS

1. A (p. 491)
2. A (p. 494)
3. C (p. 499)
4. B (p. 491)
5. D (p. 496)
6. C (p. 501)
7. C (p. 500)
8. D (p. 493)
9. C (p. 496)
10. B (p. 496)

Chapter 22
Teacher's Companion

CHAPTER OVERVIEW

This chapter covers the how and why to garnish, as well as the guidelines on garnishes for desserts and soups.

CHAPTER OBJECTIVES

22.1 Explain the purpose of garnishes, and provide examples of how to use them.

22.2 Prepare various garnishes.

22.3 List guidelines for plating food that has finished cooking.

22.4 List guidelines for plating desserts.

ADVANCE PREPARATION

Review	• Chapter 22, pages 508–521 • Unit case study, "Baking and Desserts," pages 444–445
Contact	• Pastry chef • Food stylist
Prepare	• Ingredients and supplies for activities chosen for lesson plan

CHAPTER BREAKDOWN

PAGE 510 INTRODUCTION

Discuss

- Garnishes are used to add a final appetizing finish to a plate.
- A garnish should be edible and enhance the flavor and style of the item.
- Soups have their own rules for garnishing.

PAGES 510–511 GARNISHING: WHY AND HOW

Reinforce and Review

- When planning menus and recipes, plan the garnishes as well.
- The perfect garnish might require some work and prior planning, but could set the restaurant apart as distinctive.
- Rehearse the garnish when you rehearse the menu item.
- When considering the design for a dish, consider the arrangement, colors, height, and shapes.

Discuss

- Perhaps the best way to teach garnishes is to get students excited about discussing it.
- Ask students for bad examples; they will probably come up with several.
- When they have gotten creative and outlandish describing ridiculous garnishes, bring them around again.
- Have them describe beautiful and creative garnishes.
- Be prepared with examples or pictures of nicely garnished plates.

Vocabulary Review

- ***Brunoise:*** Tiny cubed cuts of uncooked, unseasoned vegetables; often used as a garnish.
- **Design:** The overall plan for how something will look.
- **Arrangement:** Where things are placed, such as where and how food items are placed on a dish in order to maximize its appeal.
- **Colors:** One of the important elements in plating and presenting a food dish; a good balance of colors should be maintained, with three colors usually being enough, and too many colors being unappetizing.
- **Height:** One of the important elements in plating and presenting a food dish; plating in order to bring height to a dish makes the dish more interesting and appealing.
- **Shapes:** One of the important elements in plating and presenting a food dish; ingredients should be cut neatly and uniformly. The variety and balance of shapes on a plate affect the visual appeal of the presentation.

Customized Instruction

Learning disabled	Create a word wall with images to illustrate the key terms and definitions, listed below: • ***Brunoise:*** Tiny cubed cuts of uncooked, unseasoned vegetables; often used as a garnish. • **Design:** The overall plan for how something will look. • **Arrangement:** Where things are placed, such as where and how food items are placed on a dish in order to maximize its appeal. • **Colors:** One of the important elements in plating and presenting a food dish; a good balance of colors should be maintained, with three colors usually being enough, and too many colors being unappetizing. • **Height:** One of the important elements in plating and presenting a food dish; plating in order to bring height to a dish makes the dish more interesting and appealing. • **Shapes:** One of the important elements in plating and presenting a food dish; ingredients should be cut neatly and uniformly. The variety and balance of shapes on a plate affect the visual appeal of the presentation.
Academically gifted	What are some of the historic trends in cuisine for garnishes? Refer to Escoffier's recipes to provide a framework for more traditional cuisines, and compare and contrast to more modern trends. Prepare a report with your findings.
ELL	Research various garnishing techniques online, on at least 10 different topics, using a variety of garnishes.

In-Class Activity: Physical

Demonstration in Garnishing

Demonstrate to the students how to use the various garnishing tools. Be sure to stress the proper use of equipment and tools for safety while preparing food for presentation. Then, students should practice using various garnishing tools on inexpensive foods such as potatoes and carrots.

PAGES 511–516 **PLATING AND PRESENTING**

Reinforce and Review

- "Keep it simple" is a good rule of thumb. However, a garnish that is too simple might not be quite enough.
- Even a simple, easy garnish needs to look right. Looks are very important where garnishing a plate is concerned.
- The two areas of presentation technique are the food itself and the plate, platter, or dish as a whole.
- Essential Skills: Garnish as an Important Part of the Complete Dish explains the importance of garnish. Garnish goes on last, right before service. It should never look stale or wilted.

- Essential Skills: Preparing Common Garnishes describes how to prepare common garnishes such as fried parsley, fried leeks, mushroom caps, and frosted grapes.
- Essential Skills: Garnishing Platters describes how to plate and garnish hot platters.
- Essential Skills: Cucumber Fans lists the steps in creating cucumber fans.
- Video: Considerations When Plating. For a video on considerations when plating, please go to: *Textbooks.Restaurant.org/Videos*.

Discuss

- Discuss dimension in presentation and garnishing.
- Whether or not the dish or the garnish is dimensional, it should be easy and inviting to eat. It should not look like a fortress of food.
- What are the primary reasons to garnish a plate?
- Should garnishes be integrated into the dish, or something like ornamental kale, served on the side. Prepare images to refer to during discussion.

Vocabulary Review

- **Texture:** Refers to how something feels or its visible surface characteristics; for instance, a food might be described as crispy, creamy, rough, or smooth.
- **Timbale:** A dish with various ingredients, often a starch and vegetables, baked in a round mold.

Knowledge Check Answers (Page 516)

1. Garnishes are used to enhance the visual appeal of a food and to enhance the flavor of a food. (p. 510)
2. Enjoyment of a meal is affected by how it looks. If food has eye appeal, then enjoyment of the meal tends to increase. This is why garnishing properly is essential when plating. (p. 510)
3. To add height, prop the protein on the starch or vegetable. (p. 511)

Customized Instruction

Learning disabled	Using construction or butcher paper, design and create models of three different plates, using the guidelines for plating and garnishing, found on pages 510–511 and in Table 22.1.
Academically gifted	How did plating evolve in modern American cuisine? Perform research on several trending presentations, the chefs, and other information that created a code of guidelines for plating. Teacher note: The American Culinary Federation's website provides additional information on the specific presentations required for certain items during a certification exam or competition.

(continued)

ELL	Research various culinary competitions and certifications, and review videos of presentations created by individual chefs or teams. The American Culinary Federation is one example of an organization that certifies chefs based on performance and appearance. Take notes on various presentations from videos or images, and outline what you think are some of the *mise en place* steps for the various preparations.

PAGE 517 GARNISHING DESSERTS

Reinforce and Review

- Garnishes can become elaborate with desserts.
- The garnishes for desserts can be part of the dessert itself. For example, a berry coulis with a slice of cheesecake will make it berry cheesecake.

Discuss

- What are some items that can be used to garnish desserts?
- What application techniques can be used to garnish desserts?

Vocabulary Review

- **Napping:** Coating food lightly with a thin layer of sauce.

Customized Instruction

Learning disabled	For the following techniques listed below for garnishing desserts, create a graphic organizer with images to show the final technique or an example of the execution. Keep notes on potential pairings or dishes you think the garnishes would best serve. Numerous items can be used to properly garnish desserts, including the following: • Fruit coulis in many varieties • Whipped cream—flavored and unflavored • Frosted mint leaves • Chocolate work in the form of string work or formed pieces • Spun sugar work • Sweet sauces

(continued)

Learning disabled ***(cont)***	Application techniques include the following: • String work (a design made with fine piping) with a single item on the plate • Artistic design work with one item placed in another item on the plate • String work done separately and then transferred to the plate • Piping of cream or other accompaniments on the plate or dessert item • Placement of multiple types of dessert items on the plate, each with its own garnish or an interconnecting garnish Additional garnishes for desserts that add to both the appearance and flavor include the following: • Herbs, such as mint and tarragon • Thin slices of citrus fruit curls, sugared rinds, and segments • Chocolate shapes, curls, and shavings • Glazes added to poached fruits used in tarts and tortes, to add sheen to the finished product and protect the fruit • Roasted fruits, to enhance natural flavors, textures, and the final appearance • Slightly broiled meringue peaks on lemon meringue pie • Caramel decorations, to add height and crunch
Academically gifted	How can sugar be spun for artistic dessert presentations? Research the various techniques for preparing caramel and the various stages in which it is most often used in dessert applications, and create a presentation that shows how to prepare and present caramel and spun sugar for garnishes. Include visual aids in the presentation, using the medium of choice. Teacher note: • *https://forums.egullet.org/topic/58136-spun-sugar-tips-techniques/* • *https://www.washingtonpost.com/archive/lifestyle/food/1993/12/19/sweet-dreams-come-true/1829752f-3077-4961-ab0f-1a086673c022/?utm_term=.100515a0b7b6* • *http://www.curiouscook.com/site/2012/09/caramelization-new-science-new-possibilities.html* • *https://www.exploratorium.edu/cooking/candy/caramels-story.html*

(continued)

ELL	Research video clips that show how to prepare and execute the following dessert garnishing techniques. Use screenshots or images to show the *mise en place* steps, and take notes that reflect the instructions or thoughts on what you observed. Teacher note: Adjust the length of the list as needed. Numerous items can be used to properly garnish desserts, including the following: • Fruit coulis in many varieties • Whipped cream—flavored and unflavored • Frosted mint leaves • Chocolate work in the form of string work or formed pieces • Spun sugar work • Sweet sauces Application techniques include the following: • String work (a design made with fine piping) with a single item on the plate • Artistic design work with one item placed in another item on the plate • String work done separately and then transferred to the plate • Piping of cream or other accompaniments on the plate or dessert item • Placement of multiple types of dessert items on the plate, each with its own garnish or an interconnecting garnish Additional garnishes for desserts that add to both the appearance and flavor include the following: • Herbs, such as mint and tarragon • Thin slices of citrus fruit curls, sugared rinds, and segments • Chocolate shapes, curls, and shavings • Glazes added to poached fruits used in tarts and tortes, to add sheen to the finished product and protect the fruit • Roasted fruits, to enhance natural flavors, textures, and the final appearance • Slightly broiled meringue peaks on lemon meringue pie • Caramel decorations, to add height and crunch

PAGES 518–519 GARNISHING SOUPS

Reinforce and Review

- Soups have their own traditional garnishes.
- They might actually be ingredients in the soup.
- They can be traditional for the specific soup, or creative. For example, borscht is usually garnished with sour cream. Seafood chowders are often garnished with small oyster crackers, but these are offered on the side.

Discuss

- What are the three classifications of soup garnishes?
- What items can be used as toppings for soups?

Customized Instruction

Learning disabled	Using the following categories for soup garnishes, make a grid with three columns, and list as many garnishes as possible under the proper category. Use the bulleted lists on page 518 as a start, and incorporate some of your own original ideas. • Garnishes in the soup • Garnishes topping the soup • Garnishes that accompany the soup on the side
Academically gifted	How has the presentation of soup changed throughout history? Broths were the starting point for the whole restaurant industry, with Boulanger's shop in France serving restoratives. Create a visual time line to show the transformation of soups throughout history, focusing on the presentation or garnish elements. Present your research and time line to the class.
ELL	Create a graphic organizer with images to illustrate the following garnishes and accompaniments for soups. Include notes for how to use certain garnishes and accompaniments, and which soups each item would best pair with. Toppings for thick soups (such as cream of potato, cream of mushroom, and cream of leek) may include: • Chopped parsley or chives • Toasted, sliced almonds • Grated cheese • Sieved egg yolks

(continued)

ELL *(cont)*	• Chopped hard-cooked eggs • Croutons • Crumbled bacon • Paprika • A swirl or dollop (DOLL-up) of sour cream or whipped cream • Toasted seeds, such as pumpkin or squash • Fresh herbs and dried herbs • Spiced or herbed oil • Crostini of bread Garnishes in the form of accompaniments with soups include: • Crackers • Melba toast • Corn chips • Breadsticks • Cheese straws • Whole-grain wafers • Gougères (small, finger-sized pastries filled with ingredients such as mushrooms, beef, or ham—pronounced "GOO-jere")

Knowledge Check Answers (Page 519)

1. Desserts can be garnished with fruit coulis, whipped cream, frosted mint leaves, chocolate, spun sugar work, and sweet sauces. (p. 517)
2. The three classifications of garnishes for soups are garnishes in the soup, garnishes topping the soup, and garnishes that accompany the soup on the side. (p. 518)

Homework Activity: Literacy

Keeping Garnish on Top

How can you garnish a soup without having the garnish sink to the bottom? List five strategies for successful soup garnishing. How would each garnish be made?

PAGE 519 CASE STUDY FOLLOW-UP ANSWERS: "BAKING AND DESSERTS"

1. Students should refer back to page 517. When plating desserts, the chef should properly garnish with fruit coulis, whipped cream, frosted mint leaves, spun sugar work, or sweet sauces. Consider using string work, artistic design work, or uniquely plated presentations.
2. Students should refer back to page 517. Possible inexpensive garnish ingredients include whipped cream, fruit coulis, fruit slices, citrus curls, and herbs.

PAGE 520 CHAPTER ACTIVITIES ANSWERS

- **Food Presentation in the Past:** Students will need to do research on the Internet. Student responses should be concise and well written. For example, students might research the use of fried reindeer moss with cepe.
- **That Looks Delicious:** Students' dishes will vary. Students should be prepared to describe their dishes and share the results of the survey with the class. They can create cakes, pies, cupcakes, etc.
- **The Best Garnish to Make:** Students will need to do research on the Internet. Students need to support and defend their selection on which garnish they selected. How do the bordelaise sauce, porcini mushroom and compound butter, and blue cheese crust measure up in terms of time and money? Refer to the student Activity Guide for a worksheet to accompany this activity.
- **Cut the Carrot:** Carrot garnishes vary, but carrots are ideal for practicing the *brunoise* cut and others. Carrots can be shaved, shredded, cut into julienne or small dices, and *tourné,* for example.
- **Making Salmon Look Good:** Student answers will vary. Some possible garnishes might include tarragon mayonnaise, watermelon and papaya salsa, dill butter sauce, soy maple glaze, green onion, and mango-papaya salsa and asparagus.
- **Eating Flowers:** Students will need to research edible flowers. Students' PowerPoint presentations should be professional and creative. Some edible flowers include marigolds, dandelions, impatiens, and pansies.

PAGE 521 EXAM PREP ANSWERS

1. D. (p. 510)
2. C (p. 511)
3. A (p. 517)
4. A (p. 514)
5. B (p. 511)
6. A (p. 511)
7. D (p. 511)
8. A (p. 518)
9. C (p. 517)
10. C (p. 517)