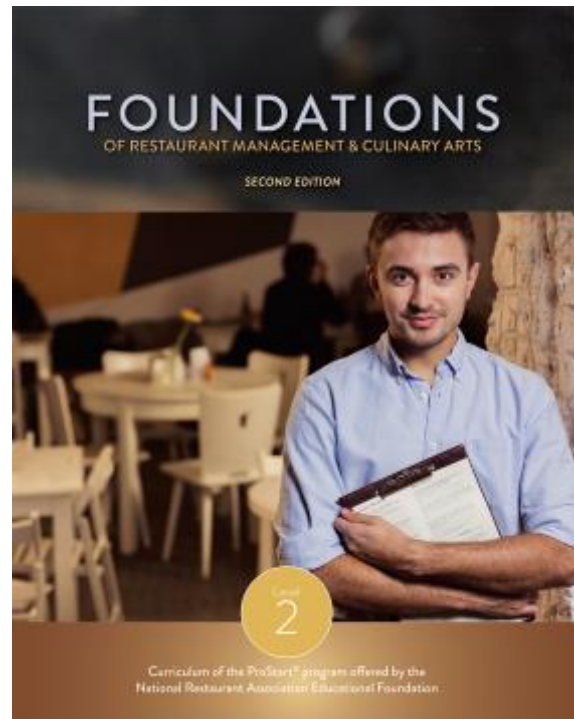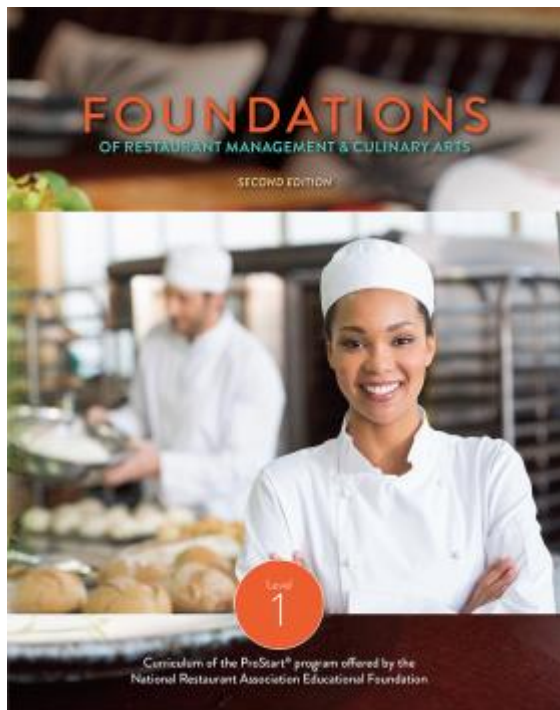A Correlation of

Foundations of
Restaurant Management & Culinary Arts,
Second Edition
Levels 1 & 2, © 2018

To the
Ohio Hospitality and Tourism Career Field Technical Content Standards (2015)

Culinary and Foodservice Operations Career Pathway

INTRODUCTION

This document demonstrates how well the National Restaurant Association's **Foundations of Restaurant Management & Culinary Arts,** **Second Edition, Levels 1 & 2 © 2018** meets the objectives of the Ohio Hospitality And Tourism Career Field Technical Content Standards. Correlation page references are to the Student Edition and are cited at the page level.

The National Restaurant Association created the most comprehensive curriculum developed by industry and academic experts, **Foundations of Restaurant Management & Culinary Arts,** **Second Edition.** This two-level program provides comprehensive student resources and robust teacher materials to provide an in-depth, industry-driven learning experience.

- Each Level features blended coverage of culinary arts and management topics designed to build well-rounded skills for the workplace.

- 21st Century Learning objectives are taught and reinforced throughout the program; critical thinking and problem solving; communication and collaboration; creativity and innovation; global awareness; and health literacy.

- Curriculum of the ProStart® Program

Certification

Students can earn exclusive certificates from the National Restaurant Association that meet Carl Perkins funding requirements. Upon completion of each course, Levels 1 and 2, students are eligible to take the corresponding exam. Those that pass will receive a certificate of recognition from the National Restaurant Association.

A Correlation of *Foundations of Restaurant Management & Culinary Arts,*
Second Edition Levels 1 & 2, © 2018
To the Ohio Hospitality and Tourism Career Field Technical Content Standards (2015)
Culinary and Foodservice Operations Career Pathway

A Correlation of
Foundations of
Restaurant Management & Culinary Arts,
Second Edition
Levels 1 & 2, © 2018
To the
Ohio Hospitality and Tourism Career Field Technical Content Standards (2015)

Culinary and Foodservice Operations Career Pathway

Ohio Hospitality and Tourism Career Field Technical Content Standards (2015)	Foundations of Restaurant Management & Culinary Arts (Levels 1 & 2) ©2018
Strand 1. Business Operations/21st Century Skills Learners apply principles of economics, business management, marketing and employability in an entrepreneur, manager and employee role to the leadership, planning, developing and analyzing of business enterprises related to the career field.	
Outcome 1.1. Employability Skills Develop career awareness and employability skills (e.g., face-to-face, online) needed for gaining and maintaining employment in diverse business settings.	**LEVEL 1** **SE:** 26–28, 29–31, 32–33, 44–47, 48–51, 52 (knowledge check), 54 (activities 1, 5, & 6), 58–62, 62–65, 76–78, 78–79, 80–87, 88–89, 92 (Q1), 93 (activity 5), 422–424, 466–467 **LEVEL 2** **SE:** 290–309 (entire chapter)
1.1.1. Identify the knowledge, skills and abilities necessary to succeed in careers.	**LEVEL 1** **SE:** 29–31, 49, 54 (activities 1 & 6), 58–62, 62–65, 466–467 **LEVEL 2** **SE:** 2–3, 42–43, 190–191, 285 (activity 5), 290–292, 310–311, 378–379, 399 (activity 5), 437 (activity 5), 442–443
1.1.2. Identify the scope of career opportunities and the requirements for education, training, certification, licensure and experience	**LEVEL 1** **SE:** 32–33, 37–38 **LEVEL 2** **SE:** 285 (activity 5), 399 (activity 5), 437 (activity 5

1.1.3. Develop a career plan that reflects career interests, pathways and secondary and postsecondary options.	**LEVEL 1** **SE:** 40 (activities 5 & 6), 54 (activity 5), 75, 90–91, 93 (activity 5) **LEVEL 2** **SE:** n/a
1.1.4. Describe the role and function of professional organizations, industry associations and organized labor and use networking techniques to develop and maintain professional relationships.	**LEVEL 1** **SE:** 37–38 **LEVEL 2** **SE:** 204 (did you know)
1.1.5. Develop strategies for self-promotion in the hiring process (e.g., filling out job applications, résumé writing, interviewing skills, portfolio development).	**LEVEL 1** **SE:** 78–87, 88–89, 92 (Q1), 93 (activities 1 & 4) **LEVEL 2** **SE:** 308 (activity 1)
1.1.6. Explain the importance of work ethic, accountability and responsibility and demonstrate associated behaviors in fulfilling personal, community and workplace roles.	**LEVEL 1** **SE:** 44–47, 422–424 **LEVEL 2** **SE:** 298–299
1.1.7. Apply problem-solving and critical-thinking skills to work-related issues when making decisions and formulating solutions.	**LEVEL 1** **SE:** 69 (Q2), 70 (activity 6), 170, 429–430, 472–474, 475, 476 (Q3), 477 (activity 3) **LEVEL 2** **SE:** 22 (all activities), 40 (case study follow-up and all activities), 112 (activity 5), 184 (activities 4 & 6), 247 (activities 1, 2, 4), 248 (activity 6), 284 (activities 1 & 3), 416 (activities 4 & 5), 456 (activity 6), 503 (activity 5), 520 (activities 3 & 5)

1.1.8. Identify the correlation between emotions, behavior and appearance and manage those to establish and maintain professionalism.	**LEVEL 1** **SE:** 34–36, 39 (Q1), 424 **LEVEL 2** **SE:** n/a
1.1.9. Give and receive constructive feedback to improve work habits.	**LEVEL 1** **SE:** 49–50, 170 **LEVEL 2** **SE:** 304–306
1.1.10. Adapt personal coping skills to adjust to taxing workplace demands.	**LEVEL 1** **SE:** 34–36, 38 (Q3 & Q4), 39 (Q1) **LEVEL 2** **SE:** n/a
1.1.11. Recognize different cultural beliefs and practices in the workplace and demonstrate respect for them.	**LEVEL 1** **SE:** 48, 52 (Q3 & Q4), 66–68 **LEVEL 2** **SE:** n/a
1.1.12. Identify healthy lifestyles that reduce the risk of chronic disease, unsafe habits and abusive behavior.	**LEVEL 1** **SE:** 34–36, 38 (Q3) **LEVEL 2** **SE:** 349–352
1.1.13. Manage time, priorities, and resources to achieve personal and professional goals.	**LEVEL 1** **SE:** 34–36, 38 (Q4), 40 (activity 3) **LEVEL 2** **SE:** n/a

Outcome 1.2. Leadership and Communications Process, maintain, evaluate and disseminate information in a business. Develop leadership and team building to promote collaboration.	**LEVEL 1** **SE:** 46–47, 49–50, 70 (activity 1), 170, 172 (activities 4 & 5), 268 (activities 5 & 6), 396 (activity 4), 429–430, 432 (activity 5), 462 (activity 4), 466–476, 478 (all activities) **LEVEL 2** **SE:** 22 (activities 4, 5, & 6), 40 (activity 4), 86 (activity 4), 112 (activity 4), 145 (activity 4), 184 (activity 4), 213 (activity 4), 234 (activity 3), 247 (activities 1 & 4), 298–304, 308 (activity 4), 334 (activity 4), 354 (activities 2 & 4), 376 (activity 4), 399 (activity 4), 416 (activities 4 & 5), 437 (activity 4), 452 (activities 2, 4, & 6), 482 (activities 4 & 5), 503 (activity 4), 520 (activity 4)
1.2.1. Extract relevant, valid information from materials and cite sources of information (e.g., medical reports, fitness assessment, medical test results).	**LEVEL 1** **SE:** 22 (activity 2), 40 (activities 2 & 4), 54 (activity 1), 93 (activity2), 116 (activity 2), 172 (activity 1), 194 (activity 2), 268 (activity 2), 325 (activity 1), 344 (activity 1), 396 (activity 2), 432 (activity 2), 462 (activity 5), 477 (activity 2) **LEVEL 2** **SE:** n/a

1.2.2. Deliver formal and informal presentations.	**LEVEL 1** **SE:** 116 (activity 1), 172 (activity 5), 218 (activity 6), 411 (activity 5), 432 (activities 1, 4, & 6), 445 (Q1), 462 (activity 1) **LEVEL 2** **SE:** 40 (activities 1 & 3), 71 (activities 1, 4, & 6), 184 (activities 1, 4, & 6), 213 (activity 1), 334 (activity 4), 354 (activities 2 & 4), 399 (activity 4), 437 (activity 4), 456 (activity 4), 482 (activity 4), 520 (activity 6)
1.2.3. Identify and use verbal, nonverbal and active listening skills to communicate effectively.	**LEVEL 1** **SE:** 49–50, 60–68, 69 (Q1 & Q2), 70 (activity 2), 168–170, 172 (activities 1 & 5), 429–430, 440–441 **LEVEL 2** **SE:** 21 (case study follow-up), 22 (all activities), 40 (activity 5), 71 (activities 1, 3, 4, 5, & 6), 86 (activities 1, 4, 5, & 6), 112 (chapter activities 1 & 2), 144 (activities 1 & 2), 145 (activities 4 & 6), 184 (activities 1, 4, 5, & 6), 213 (activities 1, 2, 5, & 6), 234 (activity 2), 247 (activity 2), 248 (activity 6), 284 (activities 1, 2, & 3), 285 (activities 4, 5, & 6), 308 (activities 2, 3, 4, 5, & 6), 334 (activities 1, 2, 4, 5, & 6), 354 (activities 1 & 6), 376 (activity 1), 399 (activities 1, 2, 5, & 6), 416 (activities 2, 4, & 5), 417 (activity 6), 437 (activities 1, 2, 5, & 6), 456 (activities 1, 4, 5, & 6), 482 (activities 1 & 6), 503 (activities 1, 2, 3, 5, & 6), 520 (activities 1, 2, 3 & 4)

1.2.4. Use negotiation and conflict-resolution skills to reach solutions.	**LEVEL 1** **SE:** 170, 429–430, 472–474, 476 (Q3), 477 (Q1 & Q2) **LEVEL 2** **SE:** n/a
1.2.5. Communicate information for an intended audience and purpose.	**LEVEL 1** **SE:** 70 (activity 1), 93 (activity 2), 116 (activity 1), 137 (activities 2 & 5), 156 (activity 2), 242 (activity 1), 325 (activity 1), 462 (activity 5), 477 (activity 2) **LEVEL 2** **SE:** 40 (all chapter activities), 71 (activities 1, 3, 4, 5, & 6), 86 (activities 1, 4, 5, & 6), 112 (activities 1 & 2), 144 (activities 1 & 2), 145 (activities 4 & 6), 184 (activities 1, 4, 5, & 6), 213 (activities 1, 2, 5, & 6), 234 (activity 2), 247 (activity 1), 248 (activity 6), 284 (activities 1, 2, & 3), 285 (activities 4, 5, & 6), 308 (activities 2, 3, 4, 5, & 6), 334 (activities 1, 2, 4, 5, & 6), 354 (activities 1 & 6), 376 (activity 1), 399 (activities 1, 2, 5, & 6), 416 (activities 2, 4, & 5), 417 (activity 6), 437 (activities 1, 2, 5, & 6), 456 (activities 1, 5, & 6), 482 (activities 1 & 6), 503 (activities 1, 2, 3, 5, & 6), 520 (activities 1, 2, 3, & 4)
1.2.6. Use proper grammar and expression in all aspects of communication.	**LEVEL 1** **SE:** 62–65, 66–68 **LEVEL 2** **SE:** n/a

1.2.7. Use problem-solving and consensus-building techniques to draw conclusions and determine next steps.	**LEVEL 1** **SE:** 69 (Q2), 70 (activity 6), 170, 429–430, 472–474, 475, 476 (Q3), 477 (activity 3) **LEVEL 2** **SE:** 40 (case study follow-up & all activities), 85 (case study follow-up), 111 (case study follow-up), 112 (activity 5), 184 (activities 4 & 6), 234 (case study follow-up), 247 (activities 1, 2, & 4), 248 (activity 6), 284 (activities 1 & 3), 308 (case study follow-up), 333 (case study follow-up), 354 (case study follow-up), 375 (case study follow-up), 398 (case study follow-up), 415 (case study follow-up), 416 (activities 4 & 5), 455 (case study follow-up), 456 (activity 6), 481 (case study follow-up), 503 (activity 5), 520 (activities 3 & 5)
1.2.8. Identify the strengths, weaknesses and characteristics of leadership styles that influence internal and external workplace relationships.	**LEVEL 1** **SE:** 475, 478 (last activity) **LEVEL 2** **SE:** n/a
1.2.9. Identify advantages and disadvantages involving digital and/or electronic communications.	**LEVEL 1** **SE:** 70 (activity 3) **LEVEL 2** **SE:** 10–11, 16–20, 22 (activities 1 & 5)

1.2.10. Use interpersonal skills to provide group leadership, promote collaboration and work in a team.	**LEVEL 1** **SE:** 46–47, 48–50, 54 (activity 4), 170, 172 (activities 4 & 5), 242 (activity 4), 268 (activities 4 & 5), 396 (activity 4), 466–476, 478 (collaboration activity) **LEVEL 2** **SE:** 22 (activities 4, 5, & 6), 40 (activity 4), 86 (activity 4), 112 (activity 4), 145 (activity 4), 184 (activity 4), 213 (activity 4), 234 (activity 3), 247 (activities 1 & 4), 298–304, 308 (activity 4), 334 (activity 4), 354 (activities 2 & 4), 376 (activity 4), 399 (activity 4), 416 (activities 4 & 5), 437 (activity 4), 452 (activities 2, 4, & 6), 482 (activities 4 & 5), 503 (activity 4), 520 (activity 4)
1.2.11. Write professional correspondence, documents, job applications and résumés.	**LEVEL 1** **SE:** 51–52, 62–65, 70 (activity 1), 76–78, 85, 88 (Q2), 89, 93 (activity 1) **LEVEL 2** **SE:** 290–291
1.2.12. Use technical writing skills to complete forms and create reports.	**LEVEL 1** **SE:** 137 (activity 4), 162–164, 166–167, 268 (activity 6), 478 (collaboration activity) **LEVEL 2** **SE:** n/a
1.2.13. Identify stakeholders and solicit their opinions.	**LEVEL 1** **SE:** 427–428 **LEVEL 2** **SE:** n/a

1.2.14. Use motivational strategies to accomplish goals.	**LEVEL 1** **SE:** 475–476 **LEVEL 2** **SE:** n/a
1.2.15. Adapt to different decision-making styles (e.g., analytical, abstract or conceptual, intuitive, creative, procedural or directive).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.2.16. Identify ways to affect workplace change.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 1.3. Business Ethics and Law Analyze how professional, ethical and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.	**LEVEL 1** **SE:** 46–47, 54 (activities 1 & 6), 160–161, 165, 168–170, 172 (activities 3 & 6), 470–471 **LEVEL 2** **SE:** n/a
1.3.1. Analyze how regulatory compliance affects business operations and organizational performance.	**LEVEL 1** **SE:** 114, 160–161, 162–164, 194 (activities 3 & 4), 178–182, 443–445 **LEVEL 2** **SE:** n/a

1.3.2. Follow protocols and practices necessary to maintain a clean, safe and healthy work environment.	**LEVEL 1** **SE:** 109–110, 122–139 (entire chapter, including summary, activities, & exam prep), 142–157 (entire chapter, including summary, activities, & exam prep), 160–173 (entire chapter, including summary, activities, & exam prep), 176–194 (activities 3, 4, & 5), 204–205, 212–213, 236–240, 242 (activities 4 & 5), 425–426 **LEVEL 2** **SE:** 84 (safety), 284 (activity 2), 396–397, 410, 414, 429
1.3.3. Use ethical character traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).	**LEVEL 1** **SE:** 46–47, 48–50, 52, 54 (activity 4) **LEVEL 2** **SE:** 254
1.3.4. Identify how federal and state consumer protection laws affect products and services.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.3.5. Access and implement safety compliance measures (e.g., quality assurance information, safety data sheets [SDSs], product safety data sheets [PSDSs], United States Environmental Protection Agency [EPA], United States Occupational Safety and Health Administration [OSHA]) that contribute to the continuous improvement of the organization.	**LEVEL 1** **SE:** 109, 114, 131, 135, 146–147, 154, 160–165, 167, 194 (activities 3 & 4), 426 **LEVEL 2** **SE:** 316–317

1.3.6. Identify deceptive practices (e.g., bait and switch, identity theft, unlawful door-to-door sales, deceptive service estimates, fraudulent misrepresentations) and their overall impact on organizational performance.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.3.7. Identify the labor and practice laws that affect employment and the consequences of noncompliance for both employee and employer (e.g., harassment, labor, employment, employment interview, testing, minor labor laws, Americans with Disabilities Act, Fair Labor Standards Acts, Equal Employment Opportunity Commission [EEOC], human trafficking) and interpret personal safety rights according to the employee Right-to-Know Plan.	**LEVEL 1** **SE:** 76, 84, 88–89, 160–164, 165, 168–170, 171 (Q1), 172 (activity 1), 426, 443–445, 470–471 **LEVEL 2** **SE:** 290–293
1.3.8. Verify compliance with computer and intellectual property laws and regulations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.3.9. Identify potential conflicts of interest (e.g., personal gain, project bidding) between personal, organizational and professional ethical standards.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 1.4. Knowledge Management and Information Technology Demonstrate current and emerging strategies and technologies used to collect, analyze, record and share information in business operations.	**LEVEL 1** **SE:** 427–428, 439–440 **LEVEL 2** **SE:** 206, 210–211
1.4.1. Use office equipment to communicate (e.g., phone, radio equipment, fax machine, scanner, public address systems).	**LEVEL 1** **SE:** 425 **LEVEL 2** **SE:** 245 (essential skills)

1.4.2. Select and use software applications to locate, record, analyze and present information (e.g., word processing, e-mail, spreadsheet, databases, presentation, Internet search engines).	**LEVEL 1** **SE:** 62–65, 70 (activity 1), 439–440 **LEVEL 2** **SE:** n/a
1.4.3. Verify compliance with security rules, regulations and codes (e.g., property, privacy, access, accuracy issues, client and patient record confidentiality) pertaining to technology specific to the industry pathway	**LEVEL 1** **SE:** 70 (activity 5) **LEVEL 2** **SE:** n/a
1.4.4. Use system hardware to support software applications.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.4.5. Use information technology tools to maintain, secure and monitor business records.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 210, 277–278
1.4.6. Use an electronic database to access and create business and technical information.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.4.7. Use personal information management and productivity applications to optimize assigned tasks (e.g., lists, calendars, address books).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.4.8. Use electronic media to communicate and follow network etiquette guidelines.	**LEVEL 1** **SE:** 62–65, 70 (activity 5) **LEVEL 2** **SE:** n/a
Outcome 1.5. Global Environment Evaluate how beliefs, values, attitudes and behaviors influence organizational strategies and goals.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.5.1. Describe how cultural understanding, cultural intelligence skills and continual awareness are interdependent.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.5.2. Describe how cultural intelligence skills influence the overall success and survival of an organization.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.5.3. Use cultural intelligence to interact with individuals from diverse cultural settings.	**LEVEL 1** **SE:** 476 (Q1, activity 1) **LEVEL 2** **SE:** n/a
1.5.4. Recognize barriers in cross-cultural relationships and implement behavioral adjustments.	**LEVEL 1** **SE:** 66–68, 476 (Q1, activity 1) **LEVEL 2** **SE:** n/a

1.5.5. Recognize the ways in which bias and discrimination may influence productivity and profitability.	**LEVEL 1** **SE:** 168–170, 172 (activity 1) **LEVEL 2** **SE:** n/a
1.5.6. Analyze work tasks for understanding and interpretation from a different cultural perspective.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.5.7. Use intercultural communication skills to exchange ideas and create meaning.	**LEVEL 1** **SE:** 66–68 **LEVEL 2** **SE:** n/a
1.5.8. Identify how multicultural teaming and globalization can foster development of new and improved products and services and recognition of new opportunities.	**LEVEL 1** **SE:** 48, 49 (side note), 50, 53 (Q2) **LEVEL 2** **SE:** n/a
Outcome 1.6. Business Literacy Develop foundational skills and knowledge in entrepreneurship, financial literacy and business operations.	**LEVEL 1** **SE:** 17, 20, 22 (Q6) **LEVEL 2** **SE:** 196–215 (entire chapter), 218–237 (entire chapter), 240–249 (entire chapter), 252–287 (entire chapter
1.6.1. Identify business opportunities.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 145 (activity 5)

1.6.2. Assess the reality of becoming an entrepreneur, including advantages and disadvantages (e.g., risk versus reward, reasons for success and failure).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.6.3. Explain the importance of planning your business.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 8–13
1.6.4. Identify types of businesses, ownership and entities (i.e., individual proprietorships, partnerships, corporations, cooperatives, public, private, profit, not-for-profit).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.6.5. Describe organizational structure, chain of command, the roles and responsibilities of the organizational departments and interdepartmental interactions (e.g., following physician's orders).	**LEVEL 1** **SE:** 246–249, 436–437 **LEVEL 2** **SE:** n/a
1.6.6. Identify the target market served by the organization, the niche that the organization fills and an outlook of the industry.	**LEVEL 1** **SE:** 10–12 **LEVEL 2** **SE:** 12–20, 21 (case study follow-up), 22 (activities 4 & 6)
1.6.7. Identify the effect of supply and demand on products and services.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 262

1.6.8. Identify the features and benefits that make an organization's product or service competitive.	**LEVEL 1** **SE:** 432 (activity 4) **LEVEL 2** **SE:** 257
1.6.9. Explain how the performance of an employee, a department and an organization is assessed.	**LEVEL 1** **SE:** 466–469 **LEVEL 2** **SE:** 304–306
1.6.10. Describe the impact of globalization on an enterprise or organization.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.6.11. Describe how all business activities of an organization work within the parameters of a budget.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 101–209, 240–242
1.6.12. Describe classifications of employee benefits, rights, deductions and compensations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 1.7. Entrepreneurship/Entrepreneurs Analyze the environment in which a business operates and the economic factors and opportunities associated with self-employment.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.7.1. Compare and contrast the four types of business ownership (i.e., individual proprietorships, partnerships, corporations, cooperatives).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** /a
1.7.2. Explain the role of profit as the incentive to entrepreneurs in a market economy.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 8–9
1.7.3. Identify the factors that contribute to the success and failure of entrepreneurial ventures.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 196
1.7.4. Assess the roles of nonprofit and for-profit businesses.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.5. Develop a business plan.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.6. Describe life cycles of an entrepreneurial business and an entrepreneur.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.7.7. Create a list of personal strengths, weaknesses, skills and abilities needed to be successful as an entrepreneur.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.8. Explain pathways used to become an entrepreneur.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.9. Conduct a self-assessment to determine entrepreneurial potential.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.10. Describe techniques for obtaining experience (e.g., apprenticeship, co-operative [co-op] education, work placement, internship, job shadowing) related to an entrepreneurial objective	**LEVEL 1** **SE:** 30–31, 40 (activities 1 & 5), 93 (activity 5) **LEVEL 2** **SE:** 2–3, 42–43, 190–191, 285 (activity 5), 290–292, 310–311, 378–379, 399 (activity 5), 437 (activity 5), 442–443
1.7.11. Identify initial steps in establishing a business (e.g., limited liability company [LLC], tax ID, permits, insurance, licensing).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.12. Identify resources available to entrepreneurs (e.g., Small Business Administration, mentors, information resources, educational opportunities).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.7.13. Protect intellectual property and knowledge (e.g., copyright, patent, trademark, trade secrets, processes).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.7.14. Determine financial decisions needed for business start-up and operations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 1.8. Operations Management Plan, organize and monitor an organization or department to maximize contribution to organizational goals and objectives.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.8.1. Forecast future resources and budgetary needs using financial documents (e.g., balance sheet, demand forecasting, financial ratios).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 201–210
1.8.2. Select and organize resources to develop a product or a service.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.8.3. Analyze the performance of organizational activities and reallocate resources to achieve established goals.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.8.4. Identify alternative actions to take when goals are not met (e.g., changing goals, changing strategies, efficiencies).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.8.5. Use inventory and control systems to purchase materials, supplies and equipment (e.g., Last In, First Out [LIFO]; First In, First Out [FIFO]; Just in Time [JIT]; LEAN).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 53, 230, 274, 277
1.8.6. Identify the advantages and disadvantages of carrying cost and Just-in-Time (JIT) production systems and the effects of maintaining inventory (e.g., perishable, shrinkage, insurance) on profitability.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 271–277
1.8.7. Collect information and feedback to help assess the organization's strategic planning and policymaking processes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.8.8. Identify routine activities for maintaining business facilities and equipment.	**LEVEL 1** **SE:** 122–139 (entire chapter, including summary, activities, & exam prep), 165, 166–167, 183–184, 232, 236–237 **LEVEL 2** **SE:** 271–277
1.8.9. Develop a budget that reflects the strategies and goals of the organization.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 201–206

1.8.10. Analyze how business management and environmental management systems (e.g., health, safety) contribute to continuous improvement and sustainability.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 316–318
1.8.11. Select and manage suppliers (e.g., qualification, selection, billing, quality control, resolution of issues).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 258–274
1.8.12. Analyze environmental issues and trends, and identify sustainable efforts and initiatives that organizations use in response.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 259 (industry), 317–322
1.8.13. Develop and implement energy and water management programs.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 322–327
1.8.14. Track usage, profitability and productivity measures.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 278–280
Outcome 1.9. Financial Management Use financial tools, strategies and systems to develop, monitor and control the use of financial resources to ensure personal and business financial well-being.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 196–215

1.9.1. Create, analyze and interpret financial documents (e.g., budgets, income statements).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 201–207
1.9.2. Identify tax obligations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.3. Review and summarize savings, investment strategies and purchasing options (e.g., cash, lease, finance, stocks, bonds).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.4. Identify credit types and their uses in order to establish credit.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.5. Identify ways to avoid or correct debt problems.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.6. Explain how credit ratings and the criteria lenders use to evaluate repayment capacity affect access to loans.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.9.7. Review and summarize categories (types) of insurance and identify how insurances can reduce financial risk.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.8. Identify income sources and expenditures.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.9. Compare and contrast different banking services available through financial institutions.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.10. Identify the role of depreciation in tax planning and liability.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.9.11. Implement established accounting processes and internal cash controls.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 1.10. Sales and Marketing Manage pricing, place, promotion, packaging, positioning and public relations to improve quality customer service.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 8–13, 16–20

1.10.1. Identify how the roles of sales, advertising and public relations contribute to a company's brand.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 16–18
1.10.2. Determine the customer's/client's needs and identify solutions and potential community resources.	**LEVEL 1** **SE:** 425–426, 427–428, 429–430, 432 (activity 5) **LEVEL 2** **SE:** 14–15
1.10.3. Communicate features, benefits and warranties of a product or service to the customer/client.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.10.4. Identify the company policies and procedures for initiating product and service improvements.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.10.5. Monitor customer/client expectations and determine product/service satisfaction by using measurement tools.	**LEVEL 1** **SE:** 427–428 **LEVEL 2** **SE:** n/a
1.10.6. Discuss the importance of correct pricing to support a product's or service's positioning in the marketing mix.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 8–9, 35–38

1.10.7. Describe the importance and diversity of distribution channels (i.e., direct, indirect) to sell a product.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.10.8. Use promotional techniques to maximize sales revenues (e.g., advertising, sales promotions, publicity, public relations).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 13 (industry), 16–20
1.10.9. Describe how product mix (e.g., product line, product items) maximizes sales revenues, market, share and profit margin.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 9–10, 34–37
1.10.10. Demonstrate sales techniques.	**LEVEL 1** **SE:** 442–443, 445, 460 (Q2), 462 (activity 1) **LEVEL 2** **SE:** n/a
1.10.11. Evaluate competitors' products, brands and activities.	**LEVEL 1** **SE:** 432 (activity 6) **LEVEL 2** **SE:** n/a
1.10.12. Use pricing strategies and tactics throughout the product and customer lifecycle.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 35–38

1.10.13. Implement and assess seasonal and situational pricing policies.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 17
1.10.14. Develop marketing plan.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 21 (case study follow-up), 22 (activity 4)
Outcome 1.11. Principles of Business Economics Examine and employ economic principles, concepts and policies to accomplish organizational goals and objectives.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.1. Identify the economic principles that guide geographic location of an industry's facilities (e.g., relative scarcity, price, quantity of products and services).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.2. Identify the difference between monetary and nonmonetary incentives and explain how changes in incentives cause changes in behavior.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.3. Use economic indicators to identify economic trends and conditions (e.g., inflation, interest rate fluctuations, unemployment rates).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

1.11.4. Determine how the quality, quantity and pricing of goods and services are affected by domestic and international competition in a market economy.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.5. Analyze factors that affect currency and exchange rates.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.6. Explain how financial markets and government policies influence interest rates (credit ratings/debt ceiling), trade deficits and unemployment.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.7. Describe how economic performance and culture are interdependent.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.8. Identify the relationships between economy, society and environment that lead to sustainability.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
1.11.9. Describe how laws and regulations influence domestic and international trade.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

Strand 2. Experience Management Learners apply customer behavior concepts to create a brand identity, design and deliver exceptional customer experiences, and build customer loyalty and brand equity.	
Outcome 2.1. Hospitality and Tourism Fundamentals Explain the composition and economic significance of the hospitality and tourism industry.	**LEVEL 1** **SE:** 8–12, 13 **LEVEL 2** **SE:** n/a
2.1.1. Describe the relationship between the economy and the hospitality and tourism industry.	**LEVEL 1** **SE:** 14–16, 20 (Q1), 22 (activity 3) **LEVEL 2** **SE:** 245 (did you know)
2.1.2. Identify the key segments of the hospitality and tourism industry, and explain their interdependence.	**LEVEL 1** **SE:** 8–12, 13 **LEVEL 2** **SE:** n/a
2.1.3. Explain the role of Convention and Visitor Bureaus (CVB), Destination Marketing Organizations (DMO) and tourism distribution organizations in generating hospitality and tourism business.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.1.4. Identify changes occurring in hospitality and tourism as a result of technological advancements and competing online services.	**LEVEL 1** **SE:** 16, 19 **LEVEL 2** **SE:** n/a

Outcome 2.2. Hospitality and Tourism Environment Analyze how customer service principles, hospitality services and operational processes work together to create a culture that allows organizations to meet or exceed customer expectations.	**LEVEL 1** **SE:** 422–424 **LEVEL 2** **SE:** n/a
2.2.1. Describe how the principles of R.A.V.E. (respect and value everyone), customer satisfaction and quality affect service delivery.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.2.2. Explain the unique characteristics of services (i.e., intangibility, inseparability, variability and perishability).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.2.3. Explain the influence of an organization's mission and vision statement on customer service practices.	**LEVEL 1** **SE:** 467–469 **LEVEL 2** **SE:** n/a
2.2.4. Explain the factors that shape customer expectations of a particular service and how subjective and objective elements of service quality can be assessed.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.2.5. Identify the types of outcomes possible during guest recovery and the impact of proactive guest experience management on realizing a positive outcome.	**LEVEL 1** **SE:** 429–430 **LEVEL 2** **SE:** n/a

2.2.6. Maintain and mine databases of customer or visitor activity and preferences.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 2.3. Brand Positioning Determine how the visible and intangible elements of a brand work together to identify and distinguish the brand in the customers' mind.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.3.1. Identify the components and types of brands and branding strategies.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.3.2. Determine branding positioning.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.3.3. Select products and services to offer that enhance brand image.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.3.4. Determine how customer touch points impact branding strategy.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

2.3.5. Coordinate people, processes and technology to deliver the brand promise.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.3.6. Determine the impact of an organization's reputation on its brand image.	**LEVEL 1** **SE:** 432 (activity 3) **LEVEL 2** **SE:** n/a
Outcome 2.4. Marketing Research Conduct qualitative and quantitative research to gather, synthesize and analyze information about a specified problem, issue or opportunity.	**LEVEL 1** **SE:** 427–428 **LEVEL 2** **SE:** 12, 22 (activity 6)
2.4.1. Distinguish between market-driven and customer-driven information.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.4.2. Explain reasons for conducting marketing research and the importance and scope of marketing research activities	**LEVEL 1** **SE:** 427–428 **LEVEL 2** **SE:** 12–13
2.4.3. Explain marketing-research design considerations; and identify the type of research appropriate for different business objectives, problems or opportunities.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

2.4.4. Determine who and how many respondents are needed to adequately represent the population.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.4.5. Determine how to obtain primary and secondary data needed for marketing research.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 12
2.4.6. Collect quantitative and qualitative marketing-research data.	**LEVEL 1** **SE:** 427–428 **LEVEL 2** **SE:** n/a
2.4.7. Apply statistical methods and software systems to analyze research data.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.4.8. Conduct analytical review of marketing data.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 13 (essential skills)
2.4.9. Translate findings into actionable business recommendations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

Outcome 2.5. Brand Communications Plan, create, implement, and manage brand-related communications to reinforce the organization's brand image.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 16–20, 22 (activity 1)
2.5.1. Explain how brand identifiers interact with marketing to influence customer expectations and create brand loyalty.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.5.2. Explain the use of social media marketing in the hospitality and tourism industry.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 10–11
2.5.3. Differentiate between the use of social media for personal and business purposes	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.5.4. Analyze the impact of traditional, word-of-mouth and social media on brand image and reach.	**LEVEL 1** **SE:** 432 (activity 3) **LEVEL 2** **SE:** 10
2.5.5. Coordinate brand messaging of internal and external partners.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

2.5.6. Create social media content.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.5.7. Track and respond to user-generated content (UGC).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.5.8. Use communications strategies to manage crises and protect or recover reputation.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.5.9. Develop policies and procedures to guide internal and external communication.	**LEVEL 1** **SE:** 170, 423–424, 425–426, 429–430, 439–441, 442–443, 445 (Q1), 459–460 (Q2), 462 (activity 1) **LEVEL 2** **SE:** n/a
Outcome 2.6. Customer Services Apply strategies and techniques to identify and meet guest needs and to establish a sense of connectedness with guests in a hospitality and tourism environment.	**LEVEL 1** **SE:** 425–426, 442–443, 445 (Q1), 460 (Q2), 462 (activity 1) **LEVEL 2** **SE:** n/a
2.6.1. Interpret unspoken needs based on understanding of human behavior, preference patterns and prior experiences.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

2.6.2. Determine strategies for responding to potentially sensitive, compromising, fraudulent or dangerous situations.	**LEVEL 1** **SE:** 112–113, 182–185, 425–426, 445 **LEVEL 2** **SE:** n/a
2.6.3. Accommodate special needs and specific requests of customers	**LEVEL 1** **SE:** 425–426, 432–435 **LEVEL 2** **SE:** n/a
2.6.4. Process customer orders accurately and efficiently while building rapport.	**LEVEL 1** **SE:** 440–441, 442–445, 460 (Q2), 462 (activity 1) **LEVEL 2** **SE:** n/a
2.6.5. Balance multiple resource demands, and maintain service standards during peak volumes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.6.6. Respond to customer inquiries, resolve their complaints, and follow up on situations.	**LEVEL 1** **SE:** 425–426, 429–430, 432 (activities 1 & 5) **LEVEL 2** **SE:** n/a
2.6.7. Take and process customer payments.	**LEVEL 1** **SE:** 459–460 **LEVEL 2** **SE:** n/a

2.6.8. Identify and deliver on opportunities to make a difference in the customer experience (i.e., positive moments of truth).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.6.9. Leverage customer experiences to build brand preference and loyalty.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.6.10. Identify and utilize credit-card fraud prevention methods, and understand the importance of identity theft controls.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 2.7. People Management Apply strategies, policies and procedures to manage new hires, union and nonunion employees and volunteers to meet quality standards.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 298–304, 308 (case study follow-up & activity 3)
2.7.1. Determine the impact of ethics and social responsibility policies and practices on business operations.	**LEVEL 1** **SE:** 47, 467–469, 471 **LEVEL 2** **SE:** n/a
2.7.2. Determine job responsibilities and expectations, and provide detailed job descriptions.	**LEVEL 1** **SE:** 468–469 **LEVEL 2** **SE:** 290–292, 308 (activity 4)

2.7.3. Recruit, screen, and interview job applicants.	**LEVEL 1** **SE:** 478 (the interview activity) **LEVEL 2** **SE:** 292–297
2.7.4. Make hiring decisions and job offers.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.7.5. Orient talent to organizational culture, values, norms, policies and procedures.	**LEVEL 1** **SE:** 48–50, 471, 475 **LEVEL 2** **SE:** 298–30
2.7.6. Train, cross-train, and coach employees and volunteers using talent-development and motivation theories.	**LEVEL 1** **SE:** 172 (activity 5) **LEVEL 2** **SE:** 302–304
2.7.7. Schedule employees and volunteers across shifts and during peak service times.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 243–245
2.7.8. Plan, delegate, and direct the work of employees and volunteers.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 240–249 (entire chapter)

2.7.9. Identify procedures for employee termination.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.7.10. Assess and document employee performance.	**LEVEL 1** **SE:** 49–50, 468–469 **LEVEL 2** **SE:** 304–306
2.7.11. Communicate outcomes of employee assessment, and take corrective measures.	**LEVEL 1** **SE:** 49–50 **LEVEL 2** **SE:** 306
2.7.12. Supervise union and nonunionized staff and volunteers.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
2.7.13. Develop employee handbook.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 301
Strand 3. Safety and Sanitation Learners apply knowledge of biological, physical and chemical hazards and the concepts of safety and sanitation to protect employees and customers from injuries, illnesses and diseases.	

Outcome 3.1. Pathogens, Illnesses and Diseases Identify pathogens that could render food unsafe for consumption without appropriate precautions and controls.	**LEVEL 1** **SE:** 102–110 **LEVEL 2** **SE:** 59 (safety), 62 (nutrition), 128 (nutrition), 429 (safety)
3.1.1. Identify methods and practices to control or eliminate pathogens and the spread of harmful bacteria, viruses, parasites, fungi and toxins.	**LEVEL 1** **SE:** 104–110, 116–117 (activities 2 & 6) **LEVEL 2** **SE:** 84 (safety), 410 (safety), 414 (safety)
3.1.2. Describe the nature and scope of the government agencies responsible for the prevention of foodborne illnesses.	**LEVEL 1** **SE:** 114 **LEVEL 2** **SE:** n/a
3.1.3. Identify types of foodborne illness caused by bacteria and viruses, their common symptoms and the food items most at risk for contamination.	**LEVEL 1** **SE:** 104–107, 110 (knowledge check) **LEVEL 2** **SE:** 59 (safety), 62 (nutrition), 84 (safety), 128 (nutrition), 410 (safety), 427 (did you know), 429 (safety)
3.1.4. Identify parasites, fungi and biological toxins by their characteristics and the major foodborne illnesses with which they are linked.	**LEVEL 1** **SE:** 108–110 **LEVEL 2** **SE:** 59 (safety), 128 (nutrition), 410 (safety), 427 (did you know), 429 (safety)
3.1.5. Identify conditions under which bacteria multiply rapidly (i.e., FAT TOM: food, acidity, temperature, time, oxygen, moisture), and implement preventive measures.	**LEVEL 1** **SE:** 104–106, 143–144, 146–150, 151–154, 156 (Q1 & Q2, activities 1, 3, 4, 5, & 6) **LEVEL 2** **SE:** n/a

3.1.6. Identify the symptoms and consequences of allergic reactions and intolerances, and implement exposure-prevention strategies.	**LEVEL 1** **SE:** 111–113 **LEVEL 2** **SE:** n/a
3.1.7. Identify sources of common allergens, and implement exposure prevention strategies.	**LEVEL 1** **SE:** 111–113 **LEVEL 2** **SE:** 427 (did you know)
Outcome 3.2. Personal Safety and Sanitation Demonstrate strategies for preventing risks and biological and physical contamination through personal hygiene, proper attire and precautionary medical safeguards.	**LEVEL 1** **SE:** 122–139 (entire chapter, including summary, activities, & exam prep), 142–143, 145, 146–153, 153–154, 156 (Q1 & Q2, all activities), 165–167, 172 (activity 5), 176–177, 178, 182–185, 212–213 **LEVEL 2** **SE:** n/a
3.2.1. Identify personal actions and behaviors that contribute to contamination and cross-contamination of food, and describe ways to prevent those issues.	**LEVEL 1** **SE:** 112–113, 122–125, 126–127, 142–157 (entire chapter, including summary, activities, & exam prep) **LEVEL 2** **SE:** 410 (safety)
3.2.2. Identify when hand-washing must occur, and wash hands using the five-step technique.	**LEVEL 1** **SE:** 123–124, 125 (knowledge check) **LEVEL 2** **SE:** n/a

3.2.3. Select, maintain, and use proper work attire and personal protective clothing and equipment appropriate to job tasks.	**LEVEL 1** **SE:** 165–167, 176–177, 182 (knowledge check) **LEVEL 2** **SE:** n/a
3.2.4. Handle situations involving bodily fluids.	**LEVEL 1** **SE:** 122, 127 **LEVEL 2** **SE:** n/a
3.2.5. Describe situations when food-handlers should be restricted or excluded from working with food or being in the operation.	**LEVEL 1** **SE:** 126–127, 137 (activity 6) **LEVEL 2** **SE:** n/a
3.2.6. Lift and move heavy materials and equipment following established ergonomic processes.	**LEVEL 1** **SE:** 188 **LEVEL 2** **SE:** n/a
3.2.7. Explain how personal safety and sanitation contribute to an organization's response to allergies and intolerances.	**LEVEL 1** **SE:** 110, 111–113 **LEVEL 2** **SE:** n/a

Outcome 3.3. Food Safety and Sanitation Demonstrate strategies for preventing and controlling biological, physical and chemical contamination of food products through proper food handling and sanitization procedures.	**LEVEL 1** **SE:** 104–110, 111–113, 122–139 (entire chapter, including summary, activities, & exam prep), 142–143, 145, 146–153, 153–154, 156 (Q1 & Q2, all activities), 165–167 **LEVEL 2** **SE:** 56 (essential skills), 59 (safety), 69, 131
3.3.1. Describe food-safety guidelines (e.g., FDA Food Code), local health-code requirements and the consequences of failing to comply.	**LEVEL 1** **SE:** 114, 147, 154 **LEVEL 2** **SE:** n/a
3.3.2. Describe the impact of Hazard Analysis and Critical Control Point (HAACP) food safety management system on food service.	**LEVEL 1** **SE:** 154, 165 **LEVEL 2** **SE:** 424
3.3.3. Identify critical control points (Hazard Analysis and Critical Control Point [HAACP]).	**LEVEL 1** **SE:** 154, 165 **LEVEL 2** **SE:** n/a
3.3.4. Identify potential biological, chemical and physical hazards.	**LEVEL 1** **SE:** 104–111, 134–135, 142–157 (entire chapter, including summary, activities, & exam prep), 165, 182–185 **LEVEL 2** **SE:** n/a

3.3.5. Identify potentially hazardous foods (PHF), Time and Temperature Control for Safety of Food (TCS) and foods in the temperature danger zone (TDZ).	**LEVEL 1** **SE:** 104–110, 111–113, 118–119 (exam prep) **LEVEL 2** **SE:** n/a
3.3.6. Follow precautionary guidelines established to address food-safety issues for high-risk populations and to reduce potential exposure to harmful pathogens.	**LEVEL 1** **SE:** 102–103, 104–110, 111–113, 114, 146–154, 156 (Q1 & Q2, all activities) **LEVEL 2** **SE:** n/a
3.3.7. Identify the effects of water characteristics, food pH levels and moisture levels on food safety and sanitation.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
3.3.8. Monitor and track food temperatures throughout the receiving, thawing, storing, cooking and holding processes.	**LEVEL 1** **SE:** 146–153 **LEVEL 2** **SE:** 52, 56 (essential skills), 59, 65, 69, 103, 130, 390–391, 396–397, 409, 410, 412, 414, 428–430, 435, 494
3.3.9. Control environment for consumer self-service foods.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
3.3.10. Mark, label, store, and dispose of food and food by-products (e.g., fats, oil, grease).	**LEVEL 1** **SE:** 213 **LEVEL 2** **SE:** n/a

3.3.11. Identify warning signs indicating potential food safety issues during the receiving, storing and serving processes based on food type.	**LEVEL 1** **SE:** 146–147, 148–153 **LEVEL 2** **SE:** 56 (essential skills), 59, 99–101, 103, 121–128, 131
3.3.12. Take corrective actions to maintain food safety.	**LEVEL 1** **SE:** 142–157 (entire chapter, including summary, activities, & exam prep) **LEVEL 2** **SE:** n/a
Outcome 3.4. Equipment Safety and Sanitation Demonstrate strategies and techniques for eliminating biological, physical and chemical contamination through proper equipment use, storage and maintenance.	**LEVEL 1** **SE:** 104–110, 111–113, 148–154, 156 (Q1 & Q2, activities 1, 3, 4, 5, & 6), 176–177, 178, 182 (knowledge check), 204–205, 212–213 **LEVEL 2** **SE:** n/a
3.4.1. Distinguish between cleaning, sterilizing and sanitizing.	**LEVEL 1** **SE:** 127–130 **LEVEL 2** **SE:** n/a
3.4.2. Implement equipment safety requirements, and adhere to health and safety codes that restrict equipment use.	**LEVEL 1** **SE:** 160–161, 166–167, 171 (Q1), 172 (activity 3), 178, 182 (knowledge check), 204–205, 212–213 **LEVEL 2** **SE:** n/a

3.4.3. Set up, program, sanitize, and use commercial equipment and machines.	**LEVEL 1** **SE:** 130–131, 132, 133–134, 135 (knowledge check), 166–167, 178, 182 (knowledge check), 212–213, 232, 236–237, 242 (activity 5) **LEVEL 2** **SE:** 130, 265, 274–277
3.4.4. Break down and maintain commercial equipment and machines.	**LEVEL 1** **SE:** 130–131, 178, 182 (knowledge check), 212–213 **LEVEL 2** **SE:** n/a
3.4.5. Calibrate temperature probes.	**LEVEL 1** **SE:** 144–145 **LEVEL 2** **SE:** n/a
3.4.6. Inspect, use, sanitize, and store knives, hand tools and implements.	**LEVEL 1** **SE:** 222–240, 242 (activity 5) **LEVEL 2** **SE:** 60–62, 64–69**,** 80–82, 104–105, 107–109, 131–133, 136–137, 139–142, 154–158, 174–176, 180, 264, 364–365, 369–370, 388, 392–394, 397, 410–411, 414, 452–453, 467–470, 480, 495, 497–498, 515, 516
3.4.7. Clean, sanitize, and store tableware and equipment.	**LEVEL 1** **SE:** 128–131 **LEVEL 2** **SE:** n/a

3.4.8. Adjust equipment and workstations to respond to allergies, food intolerances and special requests.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 414 (safety)
3.4.9. Lock out and tag out equipment until fixed.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 3.5. Site Safety and Sanitation Analyze how the physical environment contributes to safety risks, identify strategies used to reduce or eliminate risks, and follow defined safety procedures	**LEVEL 1** **SE:** 166–167, 178–182, 182–185, 194 (activities 3, 4, & 5), 195 (exam prep) **LEVEL 2** **SE:** n/a
3.5.1. Analyze the root causes of accidents, and identify prevention strategies.	**LEVEL 1** **SE:** 182–185, 194 (activity 5) **LEVEL 2** **SE:** n/a
3.5.2. Handle, maintain, and dispose of garbage and non-food refuse.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 328–332
3.5.3. Identify signs of infestations.	**LEVEL 1** **SE:** 134 **LEVEL 2** **SE:** n/a

3.5.4. Develop and implement pest management procedures.	**LEVEL 1** **SE:** 134–135, 137 (activity 5) **LEVEL 2** **SE:** n/a
3.5.5. Select and mix cleaning or sanitation solutions in the right proportions, and label container.	**LEVEL 1** **SE:** 128–130 **LEVEL 2** **SE:** n/a
3.5.6. Handle, label, store, and dispose of hazardous chemicals and waste.	**LEVEL 1** **SE:** 165–167 **LEVEL 2** **SE:** n/a
3.5.7. Determine actions to take in response to biohazard and contamination incidents.	**LEVEL 1** **SE:** 165–167 **LEVEL 2** **SE:** n/a
3.5.8. Assess fire hazards, and determine fire prevention strategies.	**LEVEL 1** **SE:** 178–182, 183–184, 194 (activities 3, 4, & 5), 195 (exam prep) **LEVEL 2** **SE:** n/a
3.5.9. Develop and implement evacuation procedures and protocols in a variety of settings.	**LEVEL 1** **SE:** 168, 172 (activity 5) **LEVEL 2** **SE:** n/a

3.5.10. Respond to illness outbreaks, medical issues and medical emergencies.	**LEVEL 1** **SE:** 119 (last activity), 182–185, 189–191, 192, 194 (Q2 & activity 5) **LEVEL 2** **SE:** n/a
3.5.11. Respond to health code violations, and develop corrective action plans.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
3.5.12. Prepare for internal and external safety checks and inspections.	**LEVEL 1** **SE:** 166–167 **LEVEL 2** **SE:** n/a
3.5.13. Conduct self-inspection audits.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Strand 4. Culinary Arts Learners apply principles of sociology, chemistry, cultural psychology and food science in the preparation, cooking and presentation of food and beverages.	
Outcome 4.1. Culinary Industry Fundamentals Analyze the effects of sociological, cultural, historical and environmental developments on consumer food preferences and the resulting culinary issues and challenges.	**LEVEL 1** **SE:** 14–16, 22 (activities 1, 3, & 6) **LEVEL 2** **SE:** 316–332 (entire chapter)

4.1.1. Differentiate among the segments of the culinary and foodservice operations industry, and identify the types of food served by these segments	**LEVEL 1** **SE:** 10–13 **LEVEL 2** **SE:** 28–29, 259
4.1.2. Analyze the effect of cultural, historical, sociological and environmental developments on food preparation and presentation.	**LEVEL 1** **SE:** 14–16, 18–20, 2 (activities 1, 3, & 6) **LEVEL 2** **SE:** 316–332 (entire chapter)
4.1.3. Analyze food preparation and presentation trends.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 59 (did you know), 131 (industry), 319 (did you know)
4.1.4. Identify characteristics of various international cuisines, and recognize notable dishes of cuisines common to different regions.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.1.5. Determine customer behavioral characteristics and factors that influence customer selection of food places and menu items.	**LEVEL 1** **SE:** 432 (activity 4), 477 (activity 2) **LEVEL 2** **SE:** n/a
Outcome 4.2. Sandwiches and Appetizers Select ingredients and prepare sandwiches, appetizers and small plates.	**LEVEL 1** **SE:** 340–342 **LEVEL 2** **SE:** n/a

4.2.1. Identify types and components of hot and cold sandwiches which are comprised of base, spread, filling, accent and garnish	**LEVEL 1** **SE:** 332–335, 336–337, 346 (exam prep) **LEVEL 2** **SE:** n/a
4.2.2. Prepare sandwich components, and assemble open, closed, hot and cold sandwiches.	**LEVEL 1** **SE:** 340–342 **LEVEL 2** **SE:** n/a
4.2.3. Prepare meat and cheese trays.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.2.4. Prepare amuse bouche, hors d'oeuvres, appetizers and small plates.	**LEVEL 1** **SE:** 310–317, 322–323, 324 (Q1 & Q2), 341, 366–369 **LEVEL 2** **SE:** n/a
Outcome 4.3. Ingredient Selection and Preparation Follow mise en place principles when organizing food and equipment, determine amounts to use, and prepare ingredients for use in recipes.	**LEVEL 1** **SE:** 250–251, 338–339, 345 (sandwich station activity) **LEVEL 2** **SE:** n/a
4.3.1. Explain the importance of product specifications and portion control.	**LEVEL 1** **SE:** 112, 114 (Q1), 276–279, 289–292 **LEVEL 2** **SE:** 224–225, 366

4.3.2. Measure solids and liquids, apply ratios and equations to scale, and convert U.S. and metric measurements.	**LEVEL 1** **SE:** 278–279, 280–285, 293 (activity 2) **LEVEL 2** **SE:** 223–224
4.3.3. Use and convert standardized recipes to achieve specific quantities and serving sizes.	**LEVEL 1** **SE:** 276–279, 293 (Q2), 294 (activities 1 & 2), 404–405, 411 (activity 3) **LEVEL 2** **SE:** 144 (activity 3), 223–224, 284–285 (activity 3), 482 (activity 3)
4.3.4. Adjust recipes and preparation techniques to respond to dietary restrictions.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 349–350, 358–374
4.3.5. Select production methods (e.g., heat transfer, moist heat, dry heat) and equipment appropriate for the food product and environment.	**LEVEL 1** **SE:** 378–393, 396 (activities 1, 5, & 6) **LEVEL 2** **SE:** 399 (activity 6), 392–393, 397, 399 (activity 6), 410, 412, 414, 433–435
4.3.6. Explain mise en place principles and their impact on kitchen operations.	**LEVEL 1** **SE:** 250–251 **LEVEL 2** **SE:** n/a
4.3.7. Demonstrate mise en place principles in setting up work space.	**LEVEL 1** **SE:** 338–339, 345 (sandwich station activity) **LEVEL 2** **SE:** n/a

4.3.8. Select tools and equipment that foster best results in food preparation.	**LEVEL 1** **SE:** 218 (activities 2 & 6), 242 (activity 6) **LEVEL 2** **SE:** n/a
4.3.9. Perform processing necessary to prepare ingredients for use in a recipe (e.g., clarify, seed, soak, steep, bread, batter, caramelize, reduce, emulsify).	**LEVEL 1** **SE:** 259–263, 268 (activity 6), 321, 355–356, 357–359, 362, 368, 383, 387 **LEVEL 2** **SE:** n/a
4.3.10. Use standard knife and fabrication skills and techniques.	**LEVEL 1** **SE:** 237–240, 242 (activity 5) **LEVEL 2** **SE:** 104–105, 132–133, 388, 394, 410–411, 431–432, 495, 515, 516
Outcome 4.4. Food Staples and Sides Preparation Apply cooking principles and methods, cultural and ethnic knowledge and nutrition management strategies to prepare and pair staples and sides.	**LEVEL 1** **SE:** 310–316, 321, 322–323, 324 (Q1), 325 (activities 4 & 6)**,** 340–342, 357, 363–365, 366–367, 368, 369, 371 (activities 4–6), 394, 396 (activities 2 & 4), 407–409, 411 (activity 4) **LEVEL 2** **SE:** n/a
4.4.1. Use quality factors to select food products and produce.	**LEVEL 1** **SE:** 304–307 **LEVEL 2** **SE:** 100–102, 121–129

4.4.2. Identify seasonings, oils, flavor enhancers and food additives by type, class and purpose.	**LEVEL 1** **SE:** 252–258, 268 (activities 1, 2, & 4), 269 (exam prep), 318–319, 323, 400–403 **LEVEL 2** **SE:** n/a
4.4.3. Create marinades and rubs	**LEVEL 1** **SE:** 380–381 **LEVEL 2** **SE:** n/a
4.4.4. Identify types and grading of egg products.	**LEVEL 1** **SE:** 147 **LEVEL 2** **SE:** 57–58
4.4.5. Prepare egg-based dishes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 61–69, 73–75
4.4.6. Identify types, grading and classification of dairy products.	**LEVEL 1** **SE:** 147 **LEVEL 2** **SE:** 48–55, 56 (essential skills)
4.4.7. Use dairy products in food dishes	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 73–75

4.4.8. Prepare salads and salad dressings.	**LEVEL 1** **SE:** 310–316, 321, 324 (Q1), 325 (activities 4 & 6) **LEVEL 2** **SE:** 124–125
4.4.9. Select dip ingredients, and prepare dips.	**LEVEL 1** **SE:** 322–323 **LEVEL 2** **SE:** n/a
4.4.10. Select stock ingredients; and prepare stocks, bouillons, broths and bases	**LEVEL 1** **SE:** 352–359, 368 **LEVEL 2** **SE:** n/a
4.4.11. Prepare sauces and gravies using appropriate thickening agents.	**LEVEL 1** **SE:** 359–365, 367, 371 (activities 2, 4, & 5), 400–402 **LEVEL 2** **SE:** 366
4.4.12. Prepare clear soups, thick soups and specialty soups.	**LEVEL 1** **SE:** 365–369 **LEVEL 2** **SE:** n/a
4.4.13. Prepare fruits.	**LEVEL 1** **SE:** 302–304, 315, 316–317 **LEVEL 2** **SE:** 103–110, 114–117

4.4.14. Prepare vegetables and legumes.	**LEVEL 1** **SE:** 310–316, 324 (Q1), 325 (activities 4 & 6), 385, 387, 389, 390 **LEVEL 2** **SE:** 131–141, 147–149, 172–174
4.4.15. Prepare starchy foods.	**LEVEL 1** **SE:** 387, 407–409, 411 (activity 4) **LEVEL 2** **SE:** 154–158
Outcome 4.5. Meat, Poultry and Seafood Apply cooking principles and methods, cultural and ethnic knowledge and nutrition management strategies to prepare meat, poultry and seafood dishes.	**LEVEL 1** **SE:** 380–394, 396 (all activities) **LEVEL 2** **SE:** 384–403, 406–421, 424–441
4.5.1. Identify types, grades and cuts of beef, veal, lamb and pork.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 384–387
4.5.2. Identify how meat composition influences food quality and preparation.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 386–387
4.5.3. Select meat cuts, and prepare meat dishes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 390–395, 401–403

4.5.4. Identify types, grades and cuts of chicken, turkey, duck and goose.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 406–409
4.5.5. Select poultry cuts, and prepare poultry dishes.	**LEVEL 1** **SE:** 396 (activities 2, 4, 5, & 6) **LEVEL 2** **SE:** 408–410, 412, 414, 419–421
4.5.6. Identify and prepare offal meats.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 389
4.5.7. Describe the characteristics, uses and methods of preparing charcuterie	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.5.8. Identify and assess the quality of fish and shellfish.	**LEVEL 1** **SE:** 147 **LEVEL 2** **SE:** 424–427
4.5.9. Prepare and cook fish and shellfish.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 430–435, 439–441

Outcome 4.6. Food Presentation Apply plating and presentation principles to deliver attractive and balanced menu items.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 510–521 (entire chapter)
4.6.1. Plate food using design principles of color, height, focal point, proportion and temperature.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 510–514
4.6.2. Prepare platter and buffet presentations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.6.3. Garnish plates, soups and desserts.	**LEVEL 1** **SE:** 308, 311, 313, 314, 341, 367, 369 **LEVEL 2** **SE:** 510–521 (entire chapter)
4.6.4. Maintain nutritional value and dietary restrictions during the plating and presentation process.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 512 (safety)
Outcome 4.7. Beverage Preparation Recommend beverage selections, and prepare non-alcoholic specialty drinks.	**LEVEL 1** **SE:** 442, 457–458 **LEVEL 2** **SE:** n/a

4.7.1. Select types of coffee and coffee flavorings, and prepare coffee drinks.	**LEVEL 1** **SE:** 455–457, 458 **LEVEL 2** **SE:** n/a
4.7.2. Select types of tea and tea flavorings, and prepare specialty tea drinks.	**LEVEL 1** **SE:** 455–457, 458 **LEVEL 2** **SE:** n/a
4.7.3. Prepare milk and dairy-based drinks.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 48–50
4.7.4. Prepare specialty juices, water and energy drinks.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.7.5. Prepare carbonated beverages.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.7.6. Monitor beverage temperatures and holding times.	**LEVEL 1** **SE:** 456–458 **LEVEL 2** **SE:** n/a

4.7.7. Determine beverage pairings appropriate for particular menu items.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 4.8. Banquet and High-Volume Cookery Prepare food in high volume to service high traffic and special requests.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.8.1. Explain the challenges, principles and corrective actions associated with preparing and serving foods to large groups.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.8.2. Maintain quality controls, and apply appropriate cooking methodology during batch cooking.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 366
4.8.3. Set up stations to support high-volume production.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
4.8.4. Adjust preparation schedules and sequencing to support high-volume production.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

Strand 5. Baking and Pastry Arts Learners apply principles of chemistry, physics and nutrition science to the preparation and baking of breads, desserts and pastries.	
Outcome 5.1. Baking and Pastry Science Analyze the scientific principles that determine baking techniques required to achieve a desired outcome	**LEVEL 1** **SE:** 400–403, 411 (activities 2 & 6) **LEVEL 2** **SE:** n/a
5.1.1. Explain the chemical reactions occurring during kneading, mixing and creaming.	**LEVEL 1** **SE:** 400–403 **LEVEL 2** **SE:** 450–451
5.1.2. Describe the consequences of under- and over-manipulation.	**LEVEL 1** **SE:** 411 (activity 4) **LEVEL 2** **SE:** n/a
5.1.3. Explain considerations in using active, active-dry and instant yeast.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
5.1.4. Proof yeast, and monitor and adjust environmental conditions to maximize yeast fermentation.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 451, 453

5.1.5. Describe how the composition of baking ingredients and temperature affect the chemical structure of the end product.	**LEVEL 1** **SE:** 400–403 **LEVEL 2** **SE:** 450
5.1.6. Analyze the effect of ingredient substitutions on chemical reactions and baking outcomes	**LEVEL 1** **SE:** 411 (activity 6) **LEVEL 2** **SE:** 454
5.1.7. Analyze how the use of different smallwares, hand tools and equipment affects the types of chemical reactions that occur during the baking process.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 5.2. Baking and Pastry Techniques Select tools and apply procedures and techniques to bake a variety of desserts and baked goods.	**LEVEL 1** **SE:** 221–234, 405, 408–409, 411 (activity 4) **LEVEL 2** **SE:** 464–487 (entire chapter), 490–507 (entire chapter)
5.2.1. Select ingredients for use in cakes, confections and pastries.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 464–486
5.2.2. Prepare and bake cookies to achieve the desired flavor, texture and shape.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 506

5.2.3. Prepare, bake and fill pie crusts, tarts and pastries.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 472–480, 485
5.2.4. Prepare, bake and assemble cakes and tortes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 464–465, 482 (activity 5), 484, 486
5.2.5. Prepare custards, puddings, gelatins, mousses and soufflés.	**LEVEL 1** **SE:** 402 **LEVEL 2** **SE:** 114, 470–471, 496, 505
5.2.6. Prepare syrups, creams and sauces.	**LEVEL 1** **SE:** 359–365, 371 (activity 5) **LEVEL 2** **SE:** 497–498, 500–501, 507
5.2.7. Prepare frozen desserts.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 499
5.2.8. Prepare fruit desserts.	**LEVEL 1** **SE:** 302–303, 308–310, 315 **LEVEL 2** **SE:** 114, 116–117, 500–501

5.2.9. Temper chocolate and coatings.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 494–495
Outcome 5.3. Breads Apply baking production techniques to prepare a variety of breads.	**LEVEL 1** **SE:** 408–409, 411 (activity 4) **LEVEL 2** **SE:** 448–461 (entire chapter)
5.3.1. Select ingredients for use in breads.	**LEVEL 1** **SE:** 400–403 **LEVEL 2** **SE:** 448–449
5.3.2. Prepare and bake quick-bread doughs and batters (e.g., biscuits, muffins, fritters, crepes, pâté à choux).	**LEVEL 1** **SE:** 408–409, 411 (activity 4) **LEVEL 2** **SE:** 479–480
5.3.3. Prepare, shape, proof, and bake yeast-leavened dough.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 450–454
5.3.4. Prepare artisan and specialty breads, sourdoughs, bagels, pretzels, holiday or seasonal breads and flat breads.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 458–461

Outcome 5.4. Specialized Decorating and Presentation Apply specialized decorating techniques to service special events and requests.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
5.4.1. Explain concepts that affect the presentation of baked goods and pastries (e.g., figure, ground, line, contrast, pattern, proportion, color, symmetry, movement, unity, balance).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
5.4.2. Prepare washes and glazes, icings, frostings, whipped toppings and fillings.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 117, 467–471, 487
5.4.3. Model chocolate for decorative purposes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
5.4.4. Demonstrate bagging and piping techniques.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 480
5.4.5. Prepare and apply base, crumb, marzipan and fondant cake coatings.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

5.4.6. Prepare and apply edible decorations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 516
5.4.7. Decorate cakes and cookies according to themes and designs.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
5.4.8. Maintain freshness and quality of baked goods, pastries and desserts in ready state to be served at a later time.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Strand 6. Nutrition Science Learners apply food science and nutrition to manage the health and wellness concerns of customers and to research and develop new food products that meet quality assurance standards.	
Outcome 6.1. Food Science Apply principles of biology, chemistry and physics to determine the nutritional values and health impacts of food products.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.1.1. Describe sources and forms of energy and the relationship between temperature and energy transfer.	**LEVEL 1** **SE:** 378–379, 395 (Q2) **LEVEL 2** **SE:** 341–345

6.1.2. Describe how food responds to temperature.	**LEVEL 1** **SE:** 105–107, 110 (knowledge check), 116–117 (activity 3), 143–144, 146–153, 154 (activity 3), 314–317, 322, 337, 358, 378–379, 380, 382, 384, 386, 388, 390, 391, 393, 394, 400, 404 **LEVEL 2** **SE:** n/a
6.1.3. Sample food products for moisture content, acidity level, specific gravity or butterfat content.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.1.4. Assess water's function in food processing, distinguish between moisture content and water activity and differentiate how water activity affects food functionality and storage.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 348
6.1.5. Describe the composition, structure and sources of sugars, complex carbohydrates, lipids, vitamins, minerals and proteins (i.e., functional ingredients) and their nutritional contributions to dietary needs.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 341–347
6.1.6. Relate the functions and physical properties of simple and complex carbohydrates, lipids, vitamins, minerals and proteins (i.e., functional ingredients) to the selection of food ingredients.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 349–350

6.1.7. Describe the roles of enzymes as catalysts and the factors that affect enzyme activity.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 345, 349
6.1.8. Differentiate the metabolic processes and the factors that affect metabolic changes in the human body, including anabolism, catabolism and basal metabolism.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.1.9. Describe the structure of molds, bacteria, viruses, prions and yeast; how they reproduce; the factors that affect their growth and their roles in food production.	**LEVEL 1** **SE:** 104–109, 110, 400–403 **LEVEL 2** **SE:** n/a
6.1.10. Describe the nature, purpose and chemical and physical effects of food additives and colorings.	**LEVEL 1** **SE:** 403 **LEVEL 2** **SE:** 348
6.1.11. Analyze the effects of pesticides, genetic modifications and other food alterations on nutritional values and physical health.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 371–374, 376 (activity 4)
6.1.12. Explain the chemical nature, required elements and nutritional implications of fermentation, gel formation, dextrinization and retrogradation processes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 51, 452

Outcome 6.2. Nutritional Analysis Apply concepts of nutrition science to determine the effects of recipes and food combinations on customer health.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 366–371
6.2.1. Analyze recommended dietary guidelines, and apply the five food-group categories to balance food selection.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 349–350, 358–360
6.2.2. Analyze the nutritional challenges of meeting special dietary needs, and identify suitable ingredient substitutes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 361–371
6.2.3. Determine the nutritional value of foods using ingredient lists and food labels.	**LEVEL 1** **SE:** 264–265 **LEVEL 2** **SE:** n/a
6.2.4. Develop standardized recipes that preserve nutrients during cooking and promote healthy eating habits.	**LEVEL 1** **SE:** 276–277, 324 (Q1 & Q2), 325 (activity 6) **LEVEL 2** **SE:** 366–371, 376 (activity 6)
Outcome 6.3. Research for Recipe Development Apply principles of food composition and chemistry, nutrition science and innovation processes to research and develop marketable new recipes.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

6.3.1. Conduct a sensory evaluation of the food product.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.3.2. Explain how product availability, cost, product quality, nutrition science, allergies and intolerances affect the food innovation process.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.3.3. Analyze trends to identify opportunities for food innovation.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.3.4. Determine the nutritional value of food products.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 376 (activity 2)
6.3.5. Develop new food concepts.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.3.6. Evaluate operational considerations, and recommend new food recipes.	**LEVEL 1** **SE:** 294 (activity 2), 324 (Q1 & Q2), 325 (activity 6), 345 (last activity) **LEVEL 2** **SE:** n/a

6.3.7. Conduct test market.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 6.4. Menu Development Apply principles of food science, nutritional analysis and human behavior to plan and design menus.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 26–41 (entire chapter)
6.4.1. Analyze sociocultural trends, food habits, preferences and nutritional guidelines to identify menu options.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 28–33
6.4.2. Select menu items consistent with defined brand and operational capabilities.	**LEVEL 1** **SE:** 345 (last activity) **LEVEL 2** **SE:** 31–33
6.4.3. Balance the nutritional value of food pairings.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.4.4. Determine menu price points and menu prices.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 35–38, 227

6.4.5. Design menus, menu item descriptions and nutritional disclosures.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.4.6. Create menus for room service, special occasions and events.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.4.7. Modify menus and recipes to adjust to food-chain supply issues (e.g., outbreaks, crop destruction, recalls, excess inventory).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
6.4.8. Evaluate compliance with truth-in-menu laws as they relate to product and menu descriptions and nutritional claims.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Strand 7. Foodservice Operations Learners use foodservice management principles to achieve profit objectives and deliver customer experiences consistent with the brand.	
Outcome 7.1. Purchasing and Inventory Management Plan and implement procedures and techniques to maintain food and beverage safety and quality, reduce costs and achieve organizational objectives during inventory acquisition, storage and use.	**LEVEL 1** **SE:** 146–147, 148–150, 151–153, 154 (Q1 & Q2), 156 (activities 1, 4, 5, & 6) **LEVEL 2** **SE:** 258–282

7.1.1. Determine how food and beverage purchasing decisions are influenced by food defense, security and supplier's agricultural and manufacturing practices.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
7.1.2. Conduct make or buy analysis, and determine course of action.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 268
7.1.3. Establish food specifications and prep lists.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 265–267
7.1.4. Calculate unit costs, total costs and yield measures for standard recipes.	**LEVEL 1** **SE:** 276, 278–279, 282 (knowledge check), 286–288, 289–292, 293–294 (activities 3, 4, & 5), 344 (activity 3), 404–405 **LEVEL 2** **SE:** 219–223, 235 (activity 4)
7.1.5. Calculate plate, buffet and salad bar requirements and costs.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
7.1.6. Develop ingredient and portion control guides.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 224–225

7.1.7. Determine sources of food loss, and select corrective procedures.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 278
7.1.8. Apply first-in first-out (FIFO) inventory control method to store and use food products.	**LEVEL 1** **SE:** 148 **LEVEL 2** **SE:** 53, 232
7.1.9. Identify sustainability considerations in purchasing food and nonfood products.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 316–332
7.1.10. Develop and implement food and nonfood waste-reduction management program.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** 328–332
Outcome 7.2. Kitchen Management and Distribution Design, implement, and manage distribution processes to achieve quality standards, expedite workflow and sustain customer satisfaction at a reasonable cost, using continuous-improvement techniques.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
7.2.1. Develop and communicate quality check processes and procedures (e.g., line checks, par stops, restaurant logs, unit inspections).	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

7.2.2. Forecast and schedule food production.	**LEVEL 1** **SE:** 477–478 (activity 3) **LEVEL 2** **SE:** n/a
7.2.3. Coordinate meal distribution based on meal type, service categories and available transportation mechanisms.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
7.2.4. Select packaging, and prepare food product for distribution.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
Outcome 7.3. Dining Room Operations Manage dining room staff, operations and systems to achieve organizational objectives.	**LEVEL 1** **SE:** 466–469, 471, 475 **LEVEL 2** **SE:** 243–245
7.3.1. Strategically interact with customers and staff.	**LEVEL 1** **SE:** 49–50, 423–424, 425–426, 429–430, 432 (activities 1 & 5), 439–441, 442–443, 435, 459–460 (Q2), 462 (activity 6), 468–469, 471, 475 **LEVEL 2** **SE:** n/a
7.3.2. Determine the customer dynamics occurring during different shifts, and assess their impact on operations.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a

7.3.3. Integrate online reservations and orders into culinary and restaurant management systems.	**LEVEL 1** **SE:** 439–441 **LEVEL 2** **SE:** n/a
7.3.4. Establish and implement processes to manage table turns, wait lines and table assignments.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
7.3.5. Establish and implement processes to facilitate interaction between the different service teams.	**LEVEL 1** **SE:** n/a **LEVEL 2** **SE:** n/a
7.3.6. Identify types of table service.	**LEVEL 1** **SE:** 446–454, 461 (summary), 462 (activity 6), 463 (exam prep) **LEVEL 2** **SE:** n/a
7.3.7. Provide table and beverage service.	**LEVEL 1** **SE:** 425–426, 432 (activities 1 & 5), 438–441, 442–445, 454, 455–458, 459–460 (Q1), 462 (activity 4) **LEVEL 2** **SE:** n/a
7.3.8. Maintain eating areas, meeting spaces and serving stations.	**LEVEL 1** **SE:** 137 (activity 4), 246–247, 250–251, 436–439 **LEVEL 2** **SE:** n/a

7.3.9. Describe the procedures foodservice establishments use to manage liability risks associated with alcohol consumption.	**LEVEL 1** **SE:** 443–445 **LEVEL 2** **SE:** n/a

Alignment note: Since Strand 8 (Lodging Operations) and Strand 9 (Travel and Tourism Operations) of the Hospitality and Tourism Career Field Technical Content Standards are not correlated to Ohio's Culinary and Foodservice Operations Career Field, they are also not aligned to this document.