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Part 123: Hospitality and Tourism



# 2014 Lodging, Hospitality, and Tourism Management

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Direct inquiries to

Instructional Design Specialist  
Research and Curriculum Unit  
P.O. Drawer DX  
Mississippi State, MS 39762  
662.325.2510

Program Coordinator  
Office of Career and Technical Education  
Mississippi Department of Education  
P.O. Box 771  
Jackson, MS 39205  
601.359.3461

Published by

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Research and Curriculum Unit  
Mississippi State University  
Mississippi State, MS 39762

Betsey Smith, Curriculum Manager  
Scott Kolle, Project Manager  
Jolanda Harris, Educational Technologist

The Research and Curriculum Unit (RCU), located in Starkville, MS, as part of Mississippi State University, was established to foster educational enhancements and innovations. In keeping with the land grant mission of Mississippi State University, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances the intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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[denise.sibley@rcu.msstate.edu](mailto:denise.sibley@rcu.msstate.edu)

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[akitchens@mde.k12.ms.us](mailto:akitchens@mde.k12.ms.us)

# Standards

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Standards are superscripted in each unit and are referenced in the appendices. Standards in the Lodging, Hospitality, and Tourism Management *Curriculum Framework and Supporting Materials* are based on the following:

## **The Common Career Technical Core Standards**

The Common Career Technical Core (CCTC) is a state-led initiative coordinated by the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) to establish a set of rigorous, high-quality standards for Career Technical Education (CTE) that states can adopt. The National Association of State Directors of Career Technical Education Consortium represents the state and territory heads of secondary, postsecondary and adult CTE across the nation. A diverse group of teachers, business and industry experts, administrators, and researchers helped guide the development of the CCTC from beginning to end to ensure CTE students will have the knowledge and skills to thrive in a global economy. The Lodging, Hospitality, and Tourism Management Curriculum will be aligned to the following CCTC Standards:

- Hospitality & Tourism Career Cluster™ (HT)
- Lodging Career Pathway (HT-LOD)
- Restaurants & Food/ Beverage Services Career Pathway (HT-RFB)
- Travel & Tourism Career Pathway (HT-TT)

The CCTC Standards are published by National Association of State Directors of Career Technical Education Consortium/National Career Technical Education Foundation, Silver Spring, MD, Copyright 2012. The CCTC Standards were downloaded from <http://www.careertech.org/career-technical-education/cctc/info.html>.

## **Common Core State Standards Initiative**

The Common Core State Standards© provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy. Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved. States and territories of the United States as well as the District of Columbia that have adopted the Common Core State Standards in whole are exempt from this provision and no attribution to the National Governors Association Center for Best Practices and Council of Chief State School Officers is required. Reprinted from <http://www.corestandards.org/>.

## **National Educational Technology Standards for Students**

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## **21st Century Skills and Information and Communication Technologies Literacy Standards**

In defining 21st century learning, the Partnership for 21st Century Skills has embraced five content and skill areas that represent the essential knowledge for the 21st century: global awareness; civic engagement; financial, economic, and business literacy; learning skills that encompass problem-solving, critical-thinking, and self-directional skills; and Information and Communication Technology (ICT) literacy.

# Preface

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Secondary career and technical education programs in Mississippi face many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act IV, 2007; and No Child Left Behind Act of 2001).

# Mississippi Teacher Professional Resources

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The following are resources for Mississippi teachers.

Curriculum, Assessment, Professional Learning, and other program resources can be found at The Research and Curriculum Unit's website: <http://www.rcu.msstate.edu>

Learning Management System: An online resource

Learning Management System information can be found at the RCU's website, under Professional Learning.

Should you need additional instructions, please call 662.325.2510.

My PLC: An online registration for all professional-development sessions

To register for any session, teachers will need an account in the registration system, MyPLC, <https://myplc.rcu.msstate.edu>. To create an account, click on the link and navigate to the "Request a Guest ID" link. The ID should be the teacher's first initial and last name and the last four (4) digits of the social security number. Teachers should complete the entire form, which will then be sent to a secure server. Upon activation of the teacher's account, he or she will receive an e-mail with login instructions. The teacher may then browse for the available sessions and register for the desired courses.

Should you need additional instructions, please call 662.325.2510.

# Executive Summary

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## **Pathway Description**

The Lodging, Hospitality and Tourism Management pathway encompasses the management, marketing, and operation of lodging, restaurants, and tourism related services. This program offers a sequence of courses that provide coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare students for further education and careers in the hospitality and tourism industry. Students' technical skill knowledge is further enhanced through experiences in authentic, real-world problems that contribute to their academic knowledge, higher-order reasoning and problem-solving skills, and general employability skills that ensure their success in the 21<sup>st</sup> century workplace.

## **Industry Certification**

The American Hotel and Lodging Association (AH&LA) is the sole national association representing all sectors and stakeholders in the lodging industry. The AH&LA's Educational Institute offers professional certification in all facets of the hospitality industry. Students who complete the Lodging, Hospitality, and Tourism Management pathway will be prepared to complete the requirements of the Certified Guest Service Professional (CGSP). The CGSP designation provides recognition for those individuals that know how to achieve and express exceptional service by engaging with their guests and creating memorable experiences.

Recognized worldwide, the CGSP designation is the highest acknowledgment of awarding-winning guest service for employees in the hospitality industry.

## **Assessment**

The latest assessment blueprint for the curriculum can be found at

<http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx>



## **Student Prerequisites**

In order for students to be able to experience success in this program, the following student prerequisites are suggested:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)
3. Instructor Approval and TABE Reading Score (eighth grade or higher)

**or**

1. TABE Reading Score (eighth grade or higher)
2. Instructor Approval

**or**

1. Instructor Approval

## **Teacher Licensure**

The latest teacher licensure information can be found at

[http://www.mde.k12.ms.us/educator-licensure.](http://www.mde.k12.ms.us/educator-licensure)

## **Professional Learning**

If you have specific questions about the content of each training session provided, please contact the Research and Curriculum Unit at 662.325.2510, and ask for the Professional Learning Specialist.

# Course Outlines

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## **Option 1—Four One-Carnegie-Unit Courses**

This curriculum consists of four one-credit courses, which should be completed in the following sequence:

- 1. Hospitality Services I—Course Code: 992102**
- 2. Hospitality Services II—Course Code: 992103**
- 3. Hospitality Services III—Course Code: 992104**
- 4. Hospitality Services IV—Course Code: 992105**

### **Course Description: Hospitality Services I**

This course introduces students to the hospitality and tourism industry and identifies some of the current and future trends affecting the hospitality and tourism industry and the impact this industry has on society and the global economy. Students will explore hospitality and tourism career opportunities and understand the skills and knowledge required to succeed in this field and the importance of offering outstanding customer services. The course also covers the main operational areas found in most lodging properties and the importance of adhering to safety policies and procedures to maintain a safe and secure environment for employees and guests.

### **Course Description: Hospitality Services II**

This course identifies some additional operational areas and their role within the hospitality industry. Students will learn how food and beverage services function within the industry and the proper techniques used to set up banquets, catering functions, and other special events. Students will gain an understanding of how resorts, cruise lines, recreational vehicles, and tent camping are part of the hospitality industry. Students learn the role of sales and marketing in the hospitality and tourism industry.

**Course Description: Hospitality Services III**

This course provides an overview of the new technologies used to enhance productivity and competitiveness in the hospitality and tourism industry. Students will learn management and leadership skills and how management deals with security and risk issues. Financial operations associated with hospitality and tourism industry will also be discussed.

**Course Description: Hospitality Services IV**

This course provides a more in-depth view of travel and tourism operations, management's role in sales and marketing and the employability skills needed to be successful in the workforce. Students will also have the opportunity to engage in a special project that is aligned with their particular area of interest in the hospitality and tourism industry.

**Hospitality Services I—Course Code: 992102**

Unit	Unit Name	Hours
1	Program Orientation	5
2	Introduction to the Hospitality and Tourism Industry	15
3	Customer Service in the Hospitality and Tourism Industry	20
4	Organization of Lodging Property	50
5	Security in Lodging Operations	15
Total		105

**Hospitality Services II—Course Code: 992103**

Unit	Unit Name	Hours
6	Food and Beverage Services	40
7	Banquet and Catering	15
8	Resort Operations	15
9	Hospitality Sales and Marketing	35
Total		105

**Hospitality Services III—Course Code: 992104**

Unit	Unit Name	Hours
10	Computerized Front Office Procedures	20
11	Management and Human Resources within the Hospitality Industry	40
12	Safety and Risk Management	15
13	Accounting and Operational Finance	25
Total		100

**Hospitality Services IV—Course Code: 992105**

14	Travel and Tourism	40
15	Hospitality Sales and Marketing Management	30
16	Employability Skills	25
17	Special Projects	20
Total		115

**Option 2—Two Two-Carnegie-Unit Courses**

This curriculum consists of two two-credit courses, which should be completed in the following sequence:

1. **Lodging, Hospitality, and Tourism Management I—Course Code: 992100**
2. **Lodging, Hospitality, and Tourism Management II—Course Code: 992101**

**Course Description: Lodging, Hospitality, and Tourism Management I**

This course combines Hospitality Services I and II into a two Carnegie unit course.

**Course Description: Lodging, Hospitality, and Tourism Management II**

This course combines Hospitality Services III and IV into a two Carnegie unit course.

**Lodging, Hospitality, and Tourism Management I—Course Code: 992100**

Unit	Unit Name	Hours
1	Program Orientation	5
2	Introduction to the Hospitality and Tourism Industry	15
3	Customer Service in the Hospitality and Tourism Industry	20
4	Organization of Lodging Property	50
5	Security in Lodging Operations	15
6	Food and Beverage Services	40
7	Banquet and Catering	15
8	Resort Operations	15
9	Hospitality Sales and Marketing	35
Total		210

**Lodging, Hospitality, and Tourism Management II—Course Code: 992101**

Unit	Unit Name	Hours
10	Computerized Front Office Procedures	20
11	Management and Human Resources within the Hospitality Industry	40
12	Safety and Risk Management	15
13	Accounting and Operational Finance	25
14	Travel and Tourism	40

15	Hospitality Sales and Marketing Management	30
16	Employability Skills	25
17	Special Projects	20
Total		215

# Research Synopsis

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## **Introduction**

The hospitality industry covers a wide range of food service and lodging organizations. Hospitality occupations are responsible for providing all of the services needed for lodging, restaurant, and traveling activities (Aboutourism Destination Consultants, 2012; Hcareers, 2012). Tourism deals specifically with providing services to people traveling outside their usual environment. The hospitality and tourism industry is ever-growing and offers many opportunities for individuals to develop and obtain positions in direct operations (e.g., front desk representative, restaurant server, and guestroom attendant), human resources, marketing, and management. With the proper training and a desire to give exemplary customer service, many people can find rewarding careers in hospitality and tourism.

## **Needs of the Future Workforce**

The hospitality and tourism sector continues to grow, and with it the need for qualified workers at all levels. This industry has added 811,000 jobs since a recent low point in January 2010, with most of the gain occurring in food services (Bureau of Labor Statistics, U. S. Department of Labor, 2012). While U. S. job growth for the hospitality industry has been estimated at 11 percent between now and 2022, in Mississippi the job growth is expected to rise by 15 percent. This figure is even higher for food service managers, at 23 percent (Economic Modeling Specialists International, 2012). In Mississippi, the top three travel and tourism jobs are in food services and drinking places, gaming (state-licensed) and lodging (Mississippi Development Authority, 2011). Travel and tourism is one of the world's largest industries. In the United States, travel and tourism contributed 9% to the GDP. Over the next ten years this industry is

expected to grow by an average of 4% annually. By 2022, it is anticipated that it will account for 328 million jobs or 1 in every 10 jobs globally (World Travel and Tourism Council, 2012).

Today’s hospitality industry is looking for people who enjoy variety, challenge, and above all people (American Hotel and Lodging Educational Institute, 2012). With the hospitality industry's growth rate increasing, the importance of finding good employees is a high priority. In recent years the hospitality industry has been left with an insufficient pipeline of skilled workers to satisfy demand. Employers are looking for employees with good interpersonal skills and proficiency in the English language (Bureau of Labor Statistics, U. S. Department of Labor, 2012). Technology skills have become increasingly important as customers have come to expect wireless connectivity and the convenience of using mobile devices to conduct business. The use of digital tools such as email and social media are being used to engage with customers (Hospitality Trends, 2012). Workers with experience may have the opportunity to move up into manager positions; however, workers with a degree in hospitality, restaurant, or food service management will have the best opportunity to move into a management position (Bureau of Labor Statistics, U. S. Department of Labor, 2012).

#### Employment

Occupational title	Employment, 2012	Projected employment, 2019	Change 2011–2022		Mean Annual wage (in dollars)
			Number	Percent	
Food Service Managers	4,290	5,272	982	23	\$14.29
Lodging Managers	1,124	1,176	52	5	\$15.27
First-Line Supervisors/Managers of Food Preparation and Serving Workers	9,076	10,345	1,269	14	\$13.21
Dining Room and Cafeteria Attendants and Bartender Helpers	2,813	3,170	357	13	\$8.14
Hosts and Hostesses,	2,332	2,617	285	12	\$8.50

Restaurant, Lounge, and Coffee Shop					
Food Preparation and Serving Related Workers, All Others	207	225	28	14%	\$10.65

(Economic Modeling Specialists International, 2012)

#### Perkins IV Requirements

The Lodging, Hospitality, and Tourism curriculum meets Perkins IV requirements of high-skill, high-wage, and/or high-demand occupations by introducing students to and preparing students for occupations. Additionally, the Lodging, Hospitality, and Tourism curriculum is integrated with academic common core standards. Lastly, the curriculum focuses on ongoing and meaningful professional development for teachers as well as relationships with industry.

#### Curriculum Content

##### Summary of Standards

The standards to be included in the Lodging, Hospitality, and Tourism Management curriculum are the Common Career Technical Core (CCTC), the Common Core State Standards (CCSS), National Educational Technology Standards for Students, and 21st Century Skills and Information and Communication Technologies Literacy Standards. Aligning the curriculum content to these standards will result in students who are highly skilled, well-rounded, more academically proficient, and more likely to be successful in community colleges, Institutions of Higher Learning and the workforce.

#### Academic Infusion

The Lodging, Hospitality, and Tourism curriculum is aligned to the CCSS for high school Language Arts and Mathematics. The CCSS are aligned with college and work expectations and include rigorous content and application of knowledge through high-order skills. This applied approach to learning academic skills has long been the practice in career and technical education



and brings relevance and enhances and reinforces these academic skills. Throughout the Lodging, Hospitality, and Tourism Management curriculum, students will be required to perform calculations and use strategic and critical thinking skills to solve real world problems.

### **Academic Credit**

If academic credit is awarded, please review the Research and Curriculum Unit link at <https://www.rcu.msstate.edu/MDE/PathwaystoSuccess.aspx>.

Click “*Curriculum Enhancement List*”. Check this site often as it is updated frequently.

### **Transition to Postsecondary Education**

The latest articulation information for Secondary to Postsecondary can be found at the Mississippi Community College Board (MCCB) website <http://www.mccb.edu/>

### **Best Practices**

#### *Innovative Instructional Technologies*

Recognizing that today’s students are digital learners, the classroom should be equipped with tools that will teach them in the way they need to learn. The Lodging, Hospitality, and Tourism Management instructor’s goal should be to include teaching strategies that incorporate current technology. To make use of the latest online communication tools and introduce students to education in an online environment, the classroom teacher is encouraged to use a learning management system. An online learning management system allows students to work collaboratively and also enables the teacher to connect more effectively with students by keeping them informed and involved.

#### *Differentiated Instruction*

Students learn in a variety of ways. Some are visual learners, needing only to read information and study it to succeed. Others are auditory learners, thriving best when information

is read aloud to them. Still others are tactile learners, needing to participate actively in their learning experiences. Add the student's background, emotional health, and circumstances, and a very unique learner emerges. Many activities are graded by rubrics that allow students to choose the type of product they will produce. By providing various teaching and assessment strategies, students with various learning styles can succeed.

#### *Career and Technical Education Student Organizations*

Teachers should investigate opportunities to sponsor a student organization. In Mississippi, DECA and Skills USA foster the types of learning expected from the Lodging, Hospitality, and Tourism Management curriculum. DECA prepares emerging leaders and entrepreneurs for careers in the travel and tourism, lodging, and food service industries. The mission of Skills USA is to help its members become world-class workers, leaders, and responsible American citizens.

#### *Cooperative Learning*

Cooperative learning can help students understand topics when independent learning cannot. Therefore, you will see several opportunities in the Lodging, Hospitality, and Tourism Management curriculum for group work. To function in today's workforce, students need to be able to work collaboratively with others and solve problems without excessive conflict. The Lodging, Hospitality, and Tourism Management curriculum provides opportunities for students to work together and help each other to complete complex tasks.

### **Conclusions**

Hospitality and tourism is a driving force in the Mississippi's economic development efforts (Mississippi Economic Council, 2012). A workforce trained to work in this industry will not only sustain existing lodging, restaurant, and tourism business, it will attract new businesses

to the state. Students that complete this program are well equipped to enter the workforce or to pursue educational opportunities at community colleges and universities in Mississippi.

# Professional Organizations

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DECA. May be found at <http://www.deca.org/>

SkillsUSA. May be found at <http://www.skillsusa.org/>

Association for Career and Technical Education (ACTE). May be found at <https://www.acteonline.org/>

Mississippi ACTE. May be found at <http://www.mississippiacte.com/>

## Using this Document

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### **Suggested Time on Task**

This section indicates an estimated number of clock hours of instruction that should be required to teach the competencies and objectives of the unit. A minimum of 140 hours of instruction is required for each Carnegie unit credit. The curriculum framework should account for approximately 75–80% of the time in the course.

### **Competencies and Suggested Objectives**

A competency represents a general concept or performance that students are expected to master as a requirement for satisfactorily completing a unit. Students will be expected to receive instruction on all competencies. The suggested objectives represent the enabling and supporting knowledge and performances that will indicate mastery of the competency at the course level.

### **Integrated Academic Topics, 21st Century Skills and Information and Communication Technology Literacy Standards, ACT College Readiness Standards, and Technology Standards for Students**

This section identifies related academic topics as required in the Subject Area Testing Program (SATP) in Algebra I, Biology I, English II, and U.S. History from 1877, which are integrated into the content of the unit. Research-based teaching strategies also incorporate ACT College Readiness standards. This section also identifies the 21st Century Skills and Information and Communication Technology Literacy skills. In addition, national technology standards for students associated with the competencies and suggested objectives for the unit are also identified.

### **References**

A list of suggested references is provided for each unit. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested, and the list may be modified or enhanced based on needs and abilities of students and on available resources.

# Unit 1: Program Orientation

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<b>Competencies and Suggested Objectives</b>	
1. Discuss policies and procedures in the educational and occupational environments. <sup>DOK12, HT.2, HT-LOD.1, HT-LOD.8</sup>	
a. Discuss and apply school policies and safety procedures.	
b. Investigate workplace policies and procedures.	
c. Investigate workplace safety procedures.	
2. Explore vocational student organizations. <sup>DOK12, HT.2, HT-LOD.1, HT-LOD.8</sup>	
a. Discuss the history and organizational structure of vocational student organizations.	
b. Explore leadership opportunities in vocational organizations.	

\*Program orientation may need to be addressed at the beginning of each course.

## Scenario

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### Unit 1

**No scenario for this unit**

## Unit 2: Introduction to Hospitality and Tourism Industry

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### Competencies and Suggested Objectives

1. Evaluate the nature and scope of the Hospitality & Tourism Career Cluster <sup>TM</sup> and the role of hospitality and tourism in society and the economy. <sup>DOK2, HT.1, HT.6</sup>
  - a. Describe the changes hospitality and tourism have experienced in modern times.
  - b. Explain how hospitality and tourism depend on one another for success.
  - c. Describe the social impact of global travel and business on hospitality and tourism.
  - d. Identify the types of hotels available to hospitality and tourism guests.
  - e. List and explain the major classifications of the hospitality industry to include ownership and operating formats.
  - f. Describe the divisions and functional areas of the lodging, foodservice, and tourism industries.
2. Describe career opportunities and means to attain those opportunities in each of the Hospitality & Tourism Career Pathways. <sup>DOK 2, HT.6, HT-RFB.9</sup>
  - a. Identify the type of potential careers available in the hospitality and tourism industry.
  - b. Identify the type of person found working in the hospitality and tourism industry.
  - c. Identify the importance of expertise building through on-the-job experience.
  - d. Explain the various career paths available in the hospitality and tourism industry.
  - e. Explain the role of the hospitality professional.
  - f. Explain the importance of office etiquette to the hospitality and tourism industry.
  - g. Explain the skills and responsibilities of a guest service professional.
  - h. Identify the steps required during the job hunt and interview process.

# Scenario

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## Interview Situation

### Unit 2

You are a candidate for a position at the PLAZA HOTEL, a 500-room hotel. You have submitted your résumé and have been invited in for a face-to-face interview with the human resources director. This interview will be used to measure your knowledge and understanding of the hospitality industry and to determine if you meet the requirements for the position.

The interview will take place in the human resources director's conference room. The human resources director will begin the interview by greeting you and you will have 5 minutes to explain why you are the best candidate for the job. After you have provided your explanation and have answered the human resources director's questions, the human resources director will conclude the interview by thanking you for your presentation.

## Front Desk Agent

### Responsibilities for this Position

- Excellent phone etiquette and clear English is a must.
- Must be computer literate and have customer service experience.
- Must be able to handle guests' check-in and check-outs and assist guests with any requests, provides exceptional guest service.

### Requirements

- Must be a citizen of this country or possess a valid work permit.
- Must live in the local area or within commuting distance
- Must be willing to work a variety of day, night, and/or weekend shifts
- Must be able to read, write, and speak English
- Must be able to converse in basic English
- Must have strong organizational skills
- Must have excellent people skills
- Must meet grooming standards
- Must be able to pass substance tests
- Must meet or exceed customer expectations
- Computer experience strongly desired
- Must meet or exceed the team expectations
- Must have an energetic personality

### Compensation

- \$10.00 - \$12.00 per hour

### Hours

- Part-time



## Benefits

- Free parking
- Free meals
- Free golf for employees plus discounts on F&B, spa, and retail
- Company hotel travel discounts

## Unit 3: Customer Service in the Hospitality and Tourism Industry

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### Competencies and Suggested Objectives

1. Demonstrate hospitality and tourism customer service skills that meet customers' needs. DOK 2, HT.3
  - a. Define service quality and service value in the hospitality and tourism industry.
  - b. Explain the purpose of quality customer service in the hospitality and tourism industry.
  - c. Explain the need for respect and value for all customers in the hospitality and tourism industry.
  - d. Identify the components used in above-and-beyond guest service.
  - e. Explain how and why guest satisfaction measurements help a business to run smoothly and profitably.
  - f. Identify the types of customer complaints.
  - g. Apply positive techniques in handling customer complaints.
  - h. Explain the role of guest recovery during the handling of guest complaints, issues, or problems.
2. Demonstrate communication skills as they relate to customer service. DOK 2, HT.LOD.1, HT.RFB.10, HT.TT.12
  - a. Apply the communication model.
  - b. Identify the rules of written and electronic communication skills.
  - c. Explain the effect of verbal and nonverbal communication on guests and co-workers.
  - d. Identify the seven barriers to effective communication.
  - e. Identify the purpose of interdepartmental communication methods.
  - f. Apply the most effective communication technique to convey information to a target audience.
  - g. Explain the role of tact and diplomacy in effective communication.
  - h. Identify the purpose of interdepartmental communication methods.
  - i. Identify the purpose of a Comm Center in hospitality and tourism operations.

# Scenario

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## Customer Service Skills to Deal with Customer Situations

### Unit 3

In the following scenario, students will practice customer service skills in written, phone, and face-to-face situations.

You are a booking agent with SMT Tours. Six weeks ago, Mr. and Mrs. Trellis booked tickets with SMT for a luxury bus tour of the Delta. The tour runs twice a day and lasts for 3 hours. The first tour starts at 10:00 a.m. and the second tour starts at 2:00 p.m. The Trellis' picked the tour that starts at 2:00 p.m. because they live four hours away and would have to leave too early in the morning to make the 10:00 tour.

Unfortunately, you made a mistake in logging the booking onto the company's computer system and Mr. and Mrs. Trellis were booked on the 10:00 a.m. tour and there are no remaining seats on the 2:00 p.m. tour.

Determine the actions you would take to resolve this issue under each of the following circumstances:

1. You discover the error when Mr. and Mrs. Trellis come to pick up their tickets 1 hour before the 2:00 p.m. tour.
2. You discover the error 6 weeks before the day of the tour.
3. You discover the error 3 days before the day of the tour.

## Unit 4: Organization of Lodging Property

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### Competencies and Suggested Objectives

1. Classify the different types of hotels and describe hotel departments and their functions.  
DOK 2, HT-LOD.1, HT-LOD.5
  - a. Describe the different classifications of hotels to include luxury, bed and breakfast, resort, economy, mid-scale, casino, and convention.
  - b. Relate the different classifications of hotels to the needs of the traveler to include business, pleasure, and family.
  - c. Describe the hotel departments and the functions of all positions within those departments.
2. Perform the basic tasks of front office employees.  
DOK 2, HT-LOD.3, HT-LOD.7, HT-LOD.8, HT-LOD.9 HT-LOD.10, HT-LOD.11
  - a. Explain the guest cycle to include pre-arrival, arrival, occupancy, and departure.
  - b. Identify how the emotional engagement of guests is influenced by each stage of the guest cycle.
  - c. Identify and explain the functions of all front office equipment to include computerized reservations, telephone systems, fax and copy machine, and key coding and distribution.
  - d. Explain and identify the different types of reservations, to include 6 p.m. guaranteed, pre-paid, direct billing, and reservation.
  - e. Create a guest reservation by phone using a guest reservation card.
  - f. Perform a guest check-in.
  - g. Perform a guest check-out.
  - h. Explain how to determine guests' wants and needs in order to meet and exceed expectations with the global traveling public.
  - i. Identify how a seamless guest experience is managed by employees and the property.
  - j. Identify the stages of the guest experience cycle and the activities associated with each stage.
  - k. Explain the need for performance standards for front desk and front office employees.
  - l. Identify the need for protecting the guest's right to privacy.
  - m. Identify the need for protecting guests against identity theft and fraud.
3. Identify the responsibilities of the front office and the front desk along with the role each plays with guests.  
DOK 2, HT-LOD.2, HT-LOD.4, HT-LOD.6
  - a. Identify and describe the job functions of positions that report through the front office positions:
    - Front desk representative
    - Uniformed services (bell attendant, door attendant, valet parking attendant, and transportation attendant)

- Concierge
- Night auditor
- Reservationist
- Cashier

b. Identify the categories under which the front office manager's responsibilities fall.

4. Identify the financial processes and when each should occur during the financial reporting cycle. DOK 2, HT-LOD.9 HT-LOD.10, HT-LOD.11, HT-LOD.12

- a. Explain the financial transactions that occur during the guest cycle.
- b. Identify the type of sensitive guest information at risk during a financial transaction.
- c. Identify the financial processes used to protect guest privacy.
- d. Explain the financial purpose of an employee code of conduct.
- e. Identify the financial opportunities for employees to influence guest spending during the guest cycle.
- f. Identify the financial goal of a hotel or lodging property.
- g. Identify the key difference between a revenue center and a cost center along with the areas belonging to each.
- h. Identify the steps required to complete a night audit and the role of the night auditor in the process.
- i. Identify the purpose of the occupancy percentage (OP), average daily rate (ADR), and revenue per available room (RevPAR) as key night audit calculations.
- j. Explain the purpose of calculating the yield statistic each day and the reason for comparing it to the occupancy percentage.
- k. Identify green practices which will reduce a hotel's carbon footprint and also reduce operating costs.

5. Describe the duties and procedures used by the housekeeping department. DOK 2, HT-LOD.2

- a. List the positions in the housekeeping department and explain their functions.
- b. Explain how the executive housekeeper uses productivity and performance standards.
- c. Describe the sanitation and disinfection techniques and safety procedures in housekeeping.
- d. Demonstrate the proper procedures for making a bed in a guestroom.
- e. Demonstrate proper procedures for stocking the housekeeping cart and proper key control.
- f. Practice entering guestroom correctly.
- g. Describe how to calculate, track, order, and issue recyclable and nonrecyclable inventory items to maintain par numbers.
- h. Identify the formulas used to manage housekeeping inventories and the purpose of each.
- i. Identify par levels and the role of the laundry cycle in storing, issuing, and tracking for the linen inventory.
- j. Identify common green practices used by the housekeeping department.

6. Understand the role of the facilities management department at a hotel. <sup>DOK 2, HT-LOD.6</sup>
- a. Identify the responsibilities of the facilities management department.
  - b. Identify the primary responsibilities of the chief engineer in overseeing the operation of the facilities management department.
  - c. Explain the importance of a well-maintained property for both the interior and exterior spaces.
  - d. Explain the purpose of facilities management regularly scheduling and performing preventive maintenance, routine inspections, and manufacturer-recommended maintenance on systems, equipment, and other high-cost items.
  - e. Identify the process for reporting, completing, and tracking repairs by the facilities management department.
  - f. Identify the role of year-round routine maintenance for grounds, landscaping, high-traffic guest areas, and snow clearing.
  - g. Discuss the four key planning areas for an emergency preparedness plan along with the role of maintaining emergency backup systems at a hotel.
  - h. Identify the three E's of green initiatives and most common green practices that fall under the facilities management department.

# Scenario

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## **Uniform Employee**

### **Unit 4**

You are a uniform employee who is responsible for ensuring the guest's first impression of the hotel is positive. It is your responsibility to achieve guest satisfaction while promoting a guest-friendly hotel. You will be given a situation dealing with a guest dilemma. Using role-play, you will demonstrate how to handle your situation in a way that will satisfy the guest and ensure the guest finds the hotel guest-friendly.

Note to teacher: Prepare a variety of scenarios of guest dilemmas with unpredictable outcomes. Give each student a different scenario. Ask students to role-play how they will resolve their guest dilemma. Their role-play should include a clear explanation of their duties, a demonstration of professional behavior, and a positive resolution for the guest.

See the rubric in the teacher resources document found on the RCU Curriculum Download page: [www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx](http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx)

## Unit 5: Security in Lodging Operations

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### Competencies and Suggested Objectives

1. Explain the role of security in protecting people and property during criminal, severe weather, and emergency situations. DOK 2, HT-LOD.11, HT-LOD.12
  - a. Identify the security functions of providing reasonable care under the innkeepers laws requiring hotels to provide travelers with a safe haven at night.
  - b. Identify the roles of a hotel's security officers and managers in protecting people and property.
  - c. Describe the role of security in maintaining control over both metal and electronic key systems for a property.
  - d. Identify the types of emergencies common during daily operations that are handled by the security team.
  - e. Identify the role of emergency preparedness to guarantee an emergency response plan is in place for a variety of potentially life-threatening emergency situations.
2. Apply security procedures to protect property of guests and employees. DOK 2, HT.5, HT-LOD.11, HT-LOD.12
  - a. Discuss the liabilities of hotels and restaurants.
  - b. Identify unsafe conditions and determine steps to take to rectify the problems.
  - c. Apply key control procedures used by the front desk to ensure guests' privacy.
  - d. Demonstrate how to handle security threats to the property and key control procedures used by employees.
  - e. Demonstrate proper procedures for protecting cash funds at the front desk, safety deposit boxes, and lost and found.



# Scenario

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## Unit 5

### **Safety and Security Activity**

You are a hotel employee who is responsible for the safety and security of guests in the hotel. It is your responsibility to achieve guest satisfaction while promoting a guest-friendly hotel. You will be given a situation dealing with the safety and security of your guests. Using role-play, you will demonstrate how to handle your situation in a way that will satisfy the guest and ensure their safety and security.

Note to teacher: Prepare a variety of scenarios dealing with the safety and security of guests or use the ones provided below. Give each student a different scenario. Ask students to role-play how they will resolve their guest dilemma. Their role-play should include a clear explanation of their duties, a demonstration of professional behavior, and a positive resolution for the guest

#### Scenario list

1. You are a room attendant who has just finished servicing your last assigned guestroom. A co-worker approaches you and asks you to let her into one of the rooms.
2. You are a front desk clerk; a well-dressed person approaches you and explains that he is meeting his spouse who is attending a meeting at the hotel. The person asks for a room key to his spouse's room to rest there while waiting.
3. A guest who has checked out of the hotel two weeks ago called to inform the hotel their daughter left one of her dolls. Your log book does not show that a doll was found in any of the hotel rooms.
4. One of the room attendants noticed a guest has left valuable jewelry and cash in the room. The room attendant calls and informs the front office of her findings.

See the rubric in the teacher resources document found on the RCU Curriculum Download page: [www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx](http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx)

## Unit 6: Food and Beverage Services

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<b>Competencies and Suggested Objectives</b>	
1. Explain the role of food service within the hospitality industry.	DOK 2, HT-RFB.5, HT-RFB.8
<ul style="list-style-type: none"><li>a. Distinguish between the different classifications of food service operations.</li><li>b. Identify and describe the different departments within each classification.</li><li>c. Identify the restaurant industry's position as a major source of jobs in the U.S. Identify the purpose for type of service, menu options, and cost in each of the five main categories of food service outlets.</li><li>d. Explain the guest and employee segments of the food and beverage guest cycle.</li><li>e. Explain the need for implementing, and consistently using, financial controls for labor costs, food costs, menu pricing, and cash control in a food and beverage operation.</li><li>f. Identify the ADA requirements that typically affect a food and beverage operation.</li></ul>	
2. Explain proper sanitation and safety procedures for food service operations.	DOK 2, HT-RFB.1, HT-RFB.2, HT-RFB.3, HT-RFB.4, HT-RFB.5, HT-RFB.6, HT-RFB.7, HT-RFB.8, HT-RFB.9, HT-RFB.10
<ul style="list-style-type: none"><li>a. Discuss the principles of biological, chemical, and physical hazards related to foodborne illness.</li><li>b. Describe the temperature danger zone.</li><li>c. Discuss proper procedures for storage and inventory control.</li><li>d. Identify the need for a written Sanitation Risk Management (SRM) program such as HACCP.</li></ul>	
3. Demonstrate proper techniques for food service.	DOK 2, HT-LOD.8
<ul style="list-style-type: none"><li>a. Explain the four main styles of table service and the purpose of each.</li><li>b. Explain the goal of providing excellent food to food service operations.</li><li>c. Explain the correct procedures for greeting customers, seating, and presenting the menus to customers.</li><li>d. Apply the correct procedures for taking the customer's order.</li><li>e. Describe the correct procedures for placing the food order in the kitchen.</li><li>f. Explain the proper techniques for picking up the food order from the kitchen.</li><li>g. Practice the correct procedures for serving the food and beverage order.</li><li>h. Discuss the correct procedures for completing side work responsibilities.</li><li>i. Identify the need for responsible beverage operations, the role of a dram law, and liabilities, legalities, and responsibilities servers, bartenders, restaurants, bars, lounges, and other beverage service providers face when serving alcohol.</li><li>j. Explain the role of banquets, catering, and special events in food and beverage operations.</li><li>k. Identify the ten most common green practices used by food and beverage facilities.</li></ul>	

# Scenario

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## **Hazard analysis critical control points (HACCP) Activity: Identifying Critical Control Points in the Flow of Food**

### **Unit 6**

#### **Directions**

1. Read the information about identifying critical control points (CCPs) in food preparation.
2. Select a recipe for students to:
  - chart the flow of foods through their food service operation on the template.
  - identify the CCPs based on the practices as indicated.

In a flowchart: (1) list the ingredients in the first row of boxes; (2) follow the flow of the ingredients in your operation from storage to assembly and service in the boxes immediately beneath those; and (3) identify the CCPs based on the practices included.

#### **Identifying Critical Control Points in Food Preparation**

The Critical Control Points in a food preparation and delivery system where hazards can be prevented, eliminated or reduced to an acceptable level. There are a number of practices that have been implicated in outbreaks of foodborne illness in foodservice. By preventing or controlling these practices, foodservice operators can reduce the probability that a food will become contaminated, and as a result decrease the chance of foodborne illness. Hazard analysis critical control points HACCP, involves monitoring these critical points or practices.

The practices that have been implicated in foodborne illness include

- keeping (potentially hazardous) foods at room temperature for prolonged periods of time;
- inadequate cooking;
- improper holding of hot food, including holding food for extended lengths of time in the food danger zone;
- Improper cooling of food;
- inadequate reheating of food previously cooked and cooled;
- improper cleaning of equipment;
- cross contamination; and
- infected food handlers (Bryan, 1990; Ali & Spencer, 1995; Todd, 1996).

When designing a HACCP system, flow charts or diagrams can be used to trace foods from storage, through preparation, and to the customer. This helps identify the steps or points in the flow of goods where, based on the food, there may be some cause for concern.

One approach is to mark the steps in the flow of goods where there may be a particular concern using the critical points as enumerated above. For example, in the Cheeseburger with Lettuce, Tomato, & Mayonnaise scenario on the following page, the flow of ingredients from storage to service are charted based on the recipe. Critical points are identified using the number(s) of the practice(s) that are important to control or monitor.

### **Attachments for Scenario**

See the rubric in the teacher resources document found on the RCU Curriculum Download page:  
[www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx](http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx)

## Unit 7: Banquet and Catering

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<b>Competencies and Suggested Objectives</b>	
1. Discuss and demonstrate proper banquet techniques.	DOK 2, HT-RFB.5, HT-RFB.8
a. Discuss and demonstrate the proper procedure for preparing a function sheet to include menu choice, room setup, price, and special requests.	
b. Discuss the differences in type of menus (breakfast, lunch, dinner, and meetings).	
c. Identify the different types of room setups.	
d. Practice setting the table based on menu selection.	
e. Practice the correct procedures for serving food in a banquet setting.	
2. Discuss catering functions and special events.	DOK 2, HT-RFB.5, HT-RFB.8
a. Discuss theme parties.	
b. Discuss receptions.	
c. Discuss and apply gratuities associated with banquet and catering functions.	
d. Discuss and identify the audio-visual and special equipment/fixtures for proper setup of catered functions, exhibits, and banquets.	

# Scenario

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## Creating a Room Arrangement

### Unit 7

#### Directions

For each scenario assigned, draw the layout for a banquet area of 100 ft x 140 ft. Be sure to include placement of the following:

- Tables and chairs, including table sizes/shapes (i.e., round, square, rectangle)
- Entertainment or audiovisual equipment
- Head tables or podium, if appropriate
- Open bars or beverage serving areas
- Buffet tables and/or serving areas

Be sure to label each item so that a setup crew could follow the diagram with a minimum of questions.

#### Scenarios:

- A. A couple is planning a wedding for 100 people. They are arranging to have a 5-piece band for entertainment. A buffet dinner and open bar are also scheduled.
- B. A small corporation is holding a training meeting for 50 of its top executives. The main speaker will supplement his lecture with a PowerPoint® presentation and a series of videotapes. A luncheon will be served at the conclusion of the training session.
- C. A manufacturing firm is planning a sales presentation for a prospective client. Approximately 30 people will attend the presentation and the dinner following. The sales team will use charts and overheads to support their proposal.

# Unit 8: Resort Operations

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## **Competencies and Suggested Objectives**

1. Understand the purpose of resorts, cruise lines, recreational vehicles, and tent camping in the hospitality and tourism industry. DOK 2, HT-TT.1, HT-TT.6, HT-TT.8, HT-TT.9, HT-TT.10, HT-TT.12
  - a. Identify the types of resorts and the target guest markets attracted to each type.
  - b. Identify the role of cruise ships in the hospitality and tourism industry, the types of ships, and the target guest market for each type.
  - c. Identify the role of recreational vehicles (RVs) and tent camping in the hospitality and tourism industry, the type of RVs available, and the target guest market for both RVs and tent camping travel.
  - d. Explain the purpose of using internal resources for sources of guest experiences and the purpose of building strong partnerships with outside businesses, agencies, and other sources for guest activities.

## Scenario

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### **Targeting RV and Tent Camping Travel**

#### **Unit 8**

You are the new owner of The Village Grill, a small established restaurant that serves plate lunches and sandwiches in the town of Pawatoc. Pawatoc is located 8 miles from Lalawethika State Park, a popular recreational area that attracts thousands of visitors each year. Most of these visitors stay in RVs or tent camp at the park. Some tourists stay at the Shady Inn Hotel in town. Although your restaurant is a local favorite, the majority of your customers are tourists staying at the Shady Inn Hotel. However, the Shady Inn Hotel is being converted into a retirement home and the local business will not be enough to keep the restaurant open.

The park ranger at Lalawethika State Park, a regular customer, told you that many campers are disappointed that there is not more of a selection of food at the park. There is only a small general store at the lake where campers can purchase some food items that can be prepared at their camp. You realize that the campers at the park may be your only hope in keeping the restaurant open.

Develop a plan to target the campers at the lake.

## Unit 9: Hospitality Sales and Marketing

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<b>Competencies and Suggested Objectives</b>	
1. Understand the role of sales in the hospitality and tourism industry. <small>DOK 2, HT.1, HT-TT.3, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11, HT-TT.12</small>	<ol style="list-style-type: none"><li>a. Identify the key objectives and various tasks of a hospitality and tourism sales department.</li><li>b. Identify the structure and positions found in a hospitality and tourism sales department.</li><li>c. Explain the responsibilities of a hospitality and tourism sales professional.</li><li>d. Identify the purpose of prospecting and the role of the Internet, networking, relationship building, strategic alliances, and referrals in hospitality and tourism sales.</li><li>e. Identify the types of sales, the purpose of upgrading sales, and the role of specialty sales in hospitality and tourism.</li></ol>
2. Understand the role of marketing in the hospitality and tourism industry. <small>DOK 2, HT.1, HT-TT.3, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11, HT-TT.12</small>	<ol style="list-style-type: none"><li>a. Identify the marketing activities used in the hospitality and tourism industry</li><li>b. Differentiate between marketing and advertising.</li><li>c. Explain the purpose of measuring return on investment (ROI) for all marketing efforts.</li><li>d. Identify the four Ps of marketing and the role of each in the development of a marketing plan.</li><li>e. Identify the purpose of analyzing market segments when deciding which target market to focus on when building a marketing plan, strategy, and message.</li><li>f. Identify market characteristics.</li><li>g. Explain the use of demographics and psychographics in researching and positioning products for specific market segments or target markets.</li><li>h. Identify the principles of supply and demand.</li><li>i. Identify the purpose of communicating marketing messages to guests.</li><li>j. Explain the role of ethics and ethical practices in hospitality and tourism marketing.</li><li>k. Explain the purpose of implementing green practices as part of the marketing plan, strategy, or message.</li></ol>



# Scenario

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## **Suggestion Selling**

### **Unit 9**

The goal is to have the student recognize the appropriate situations in which a front desk clerk would use suggestion selling to upgrade a hotel room for a guest. The role is that of a front desk clerk at a five star luxury hotel. The situation is the front desk clerk is checking in a guest who will be transacting business meetings in his hotel room. He is currently registered in a Deluxe King on the Executive Floor. The hotel has a suite available that would provide a sleeping area comparable to the Deluxe King and a separate area for conducting business. The guest will remain on the Executive Floor however there will be additional cost for the upgrade. Regardless of the guest's decision, the front desk clerk should act on the belief that satisfying customer's needs and wants must be their first priority.

You are a front desk clerk at a five star luxury hotel and it is your job to recognize the appropriate situations in which you should use suggestion selling to upgrade a hotel room for a guest. You are checking in a guest who will be transacting business meetings in his hotel room. He is currently registered in a Deluxe King on the Executive Floor. The hotel has a suite available that would provide a sleeping area comparable to the Deluxe King and a separate area for conducting business. The guest will remain on the Executive Floor; however, there will be an additional cost for the upgrade. Create a plan detailing how you would attempt to encourage the guest to upgrade to a suite. The guest should not feel pressured and should feel as though customer satisfaction is your main concern.

## Unit 10: Computerized Front Office Procedures

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<b>Competencies and Suggested Objectives</b>	
1. Perform the appropriate reservation procedures using computerized reservation systems. DOK 2, HT-LOD.1, HT-LOD.7, HT-LOD.8,	
a. Use proper telephone techniques and computer skills to accurately record reservation information.	
b. Use proper telephone techniques and computer skills to accurately change reservation information.	
c. Use proper telephone techniques and computer skills to accurately cancel reservation information.	
2. Apply proper computerized techniques in check-in-and check-out processes. DOK 2, HT-LOD.1	
a. Utilize communication skills to take in and convey information while using the computer to accurately record proper information during check-in.	
b. Utilize communication skills to take in and convey information while using the computer to accurately record proper information during check-out.	
3. Demonstrate the use of front office equipment. DOK 2, HT-LOD.1, HT-LOD.7, HT-LOD.8, HT-LOD.10	
a. Demonstrate the use of the fax, copier, scanner, and printer.	
b. Discuss appropriate guest charges for use of front office equipment.	

# Scenario

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## Unit 10

### Computerized Front Office Activity

You are front desk agent who is responsible for accurately recording guest reservation information, accurately changing guest reservations, and accurately canceling the guest reservation using the hotel's computerized system. It is your responsibility to achieve guest satisfaction while promoting a guest-friendly hotel.

You need to handle your situation in a way that will satisfy the guest and may include (if applicable) the correct way for handling a guest reservation with the use of the computer system. Situation may include the making, changing, or canceling of the guest reservation. In a role play, you will give details on how you will resolve your guest dilemma. Your role-play may include a clear explanation of making, changing, or canceling of a guest reservation with the use of a computer. A demonstration of professional behavior and a positive resolution for the guest will be monitored.

Note to teacher: Note to teacher: Prepare a variety of scenarios with unpredictable outcomes or use the ones provided below. Give each student a different scenario. Ask students to role-play how they will resolve their guest dilemma. Their role-play should include a clear explanation of their duties, a demonstration of professional behavior, and a positive resolution for the guest.

#### Scenario list

1. A guest calls the hotel to make a non-guaranteed reservation and would like the hotel to send a confirmation showing the reservation has been entered into the computer.
2. A frequent guest who has a reservation at your property would like to change her reservation to one of your other properties in the same city.
3. A guest arrives late in the evening with a guaranteed reservation, but the reservation is not showing in your computer system.
4. A guest calls to change his reservation to a different day and would like to add two more rooms to his reservation.

See the rubric in the teacher resources document found on the RCU Curriculum Download page: [www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx](http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx)

# Unit 11: Management and Human Resources within the Hospitality Industry

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<b>Competencies and Suggested Objectives</b>	
1. Demonstrate proper management skills. <small>DOK 2, HT.4, HT-LOD.3, HT-LOD.4, HT-LOD.9, HT-LOD.11</small>	<ul style="list-style-type: none"> <li>a. Identify traditional management styles to include autocratic, bureaucratic, laissez faire and democratic.</li> <li>b. Explain the role of the manager in the employee empowerment process.</li> <li>c. Demonstrate effective staffing and scheduling techniques.</li> <li>d. Discuss the role of management in the guest experience cycle.</li> <li>e. Demonstrate how a manager leads a GOLD guest service team.</li> <li>f. Identify ways a hotel or restaurant can minimize the risks involved in doing business.</li> <li>g. Explore ways to apply the principles of time management.</li> <li>h. Discuss and demonstrate crisis management skills.</li> <li>i. Discuss why media training is necessary for managers.</li> </ul>
2. Understand the role of leadership in the hospitality and tourism industry. <small>DOK 2, HT-LOD.4, HT-LOD.8, HT-RFB.4</small>	<ul style="list-style-type: none"> <li>a. Recognize the skills and attributes of a good leader.</li> <li>b. Identify the leadership positions available in the hospitality and tourism industry.</li> <li>c. Analyze the relationship between leadership and management.</li> <li>d. Demonstrate how the guest cycle is managed through the good leadership skills and processes.</li> </ul>
3. Demonstrate appropriate processes and methods used by managers to communicate with employees. <small>DOK 2, HT.4, HT-LOD.4, HT-LOD.6</small>	<ul style="list-style-type: none"> <li>a. Discuss the purpose of a mission statement</li> <li>b. Explain the importance of clearly communicating each employee's purpose and role in the organization.</li> <li>c. Demonstrate how to properly communicate performance goals to employees to ensure their performance meets standards.</li> <li>d. Identify and apply appropriate interaction skills with other employees.</li> <li>e. Employ team work as a part of the daily routine.</li> <li>f. Discuss the importance of employee evaluation and feedback.</li> </ul>
4. Understand the duties and responsibilities of the front office manager. <small>DOK 2, HT-LOD.3, HT-LOD.4, HT-LOD.6, HT-LOD.7, HT-LOD.8, HT-LOD.10, HT-LOD.11, HT-LOD.12</small>	<ul style="list-style-type: none"> <li>a. Identify the key duties and responsibilities of the front office manager.</li> <li>b. Clarify which job positions report to the front office manager.</li> <li>c. Explain how front office manager's use information generated by the night audit to make decisions regarding the operation of the hotel property.</li> <li>d. Demonstrate how front office managers control labor costs.</li> </ul>
5. Understand the key duties and responsibilities of the housekeeping management team. <small>DOK 2, HT-LOD.2</small>	<ul style="list-style-type: none"> <li>a. Identify the key duties and responsibilities of the executive housekeeper.</li> <li>b. Explain how the budget process is managed by the executive housekeeper.</li> <li>c. Explain how training of the housekeeping staff is conducted.</li> </ul>

<p>d. Justify the purpose for the performance standards in place for the housekeeping staff.</p>
<p>6. Understand the key duties and responsibilities of the facilities management leadership team. <small>DOK 2, HT.5, HT-LOD.12, HT-TT.4</small></p> <ul style="list-style-type: none"> <li>a. Identify the duties and responsibilities of the chief engineer.</li> <li>b. Identify the management positions that report to the chief engineer.</li> <li>c. Explain how the ADA law impacts facilities management.</li> <li>d. Explain how ADA improvements managed as a budgetary process.</li> <li>e. Explain how preventive maintenance is managed.</li> <li>f. Explain how engineering manages the property's carbon footprint.</li> <li>g. Explain how emergency planning is managed by the facilities department.</li> </ul>
<p>7. Understand the duties of the food and beverage service management team. <small>DOK 2, HT-RFB.2, HT-RFB.4, HT-RFB.5, HT-RFB.8, HT-RFB.10</small></p> <ul style="list-style-type: none"> <li>a. Explain how management style and responsibilities vary from one type of F&amp;B operation to another.</li> <li>b. Explain how F&amp;B operations accommodate guests with special needs.</li> <li>c. Explain how the guest cycle is managed to meet guest expectations in order to keep a property profitable.</li> <li>d. Identify leadership's responsibilities when managing the financial cycle and other processes for an F&amp;B operation.</li> <li>e. Explain how leadership manages food costs, safety, and sanitation.</li> <li>f. Assess what is involved in managing kitchen operations.</li> <li>g. Explain how a leader manages responsible beverage operations involving the serving of alcohol.</li> </ul>
<p>8. Understand the purpose of the human resources department and how human resources are utilized in a leadership position. <small>DOK 2, HT.4, HT-LOD.1, HT-LOD.3, HT-LOD.6, HT-LOD.12, HT-RFB.9</small></p> <ul style="list-style-type: none"> <li>a. Identify the key responsibilities of the human resources department.</li> <li>b. Discuss leadership's role in the human resource process.</li> <li>c. Explain how interview and hiring practices are managed.</li> <li>d. Discuss the purpose of providing orientation and training to new and existing employees.</li> <li>e. Explain how staffing and scheduling is managed by various departments.</li> <li>f. Explain how diversity is managed through the human resource process.</li> <li>g. Identify employee rights and benefits that are managed through the human resources department.</li> </ul>

# Scenario

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## Unit 11

### **Supervision and Human Relations**

You are the Human Resources Manager of an all-suite independent hotel. After reviewing the current performance appraisal system at your property you decide to interview the hourly employees and get their feedback. Here are some of their comments:

- “My managers do not know what I do. They couldn’t do my job if they had to. How can they evaluate me?”
- “If there was a problem with the way I do my job, why wasn’t I told right away?”
- “Why do I have to wait for some crazy evaluation to find out I’m doing something wrong?”
- “If the manager likes you, you know you are going to get a good review. If the manager doesn’t like you it doesn’t matter how good you do your job, your evaluation is going to be bad.”
- “My manager is the one who needs to be evaluated . . . by his staff.”

Take each of these comments and write a plan for overcoming these criticisms in the new performance appraisal system you are developing. Consider the following questions:

- Will your style of management influence your appraisal system?
- How will your performance appraisal system guarantee that employees will not be making these same comments?
- How will you provide feedback to your managers and employees about the new performance appraisal system?

## Unit 12: Safety and Risk Management

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<b>Competencies and Suggested Objectives</b>	
1. Understand the purpose of maintaining a safe, healthy environment for guests and employees. <small>DOK 2, HT.5, HT-LOD.11, HT-LOD.12, HT-RFB.1, HT-RFB.8</small>	<ul style="list-style-type: none"> <li>a. Explain why workplace safety is a significant responsibility of the hospitality and tourism manager</li> <li>b. Identify the role of occupational safety and the purpose of a job safety analysis report in providing safe work conditions to employees.</li> <li>c. Identify the safety policies and procedures regarding operational safety for slips, trip, and falls along with fire safety and safe lifting.</li> </ul>
2. Understand the processes used to maintain a safe and healthy environment for guests and employees. <small>DOK 2, HT.5, HT-LOD.11, HT-LOD.12, HT-RFB.1, HT-RFB.8</small>	<ul style="list-style-type: none"> <li>a. Explain the risk management process and the use of the 14 elements of a health and safety program in the workplace.</li> <li>b. Explain why sanitation risk management is a critical part of the manager's responsibilities.</li> <li>c. Identify the role of the Occupational Safety and Health Administration (OSHA) in ensuring a safe and healthy work environment for all American workers by overseeing Hazardous Materials Communication (HazCom) Standards.</li> <li>d. Discuss how managing all OSHA requirements is accomplished.</li> </ul>
3. Identify the procedures to follow in the event of a fire. <small>DOK 2, HT.5, HT-LOD.11, HT-LOD.12, HT-RFB.8</small>	<ul style="list-style-type: none"> <li>a. Identify the three classes of fires and explain the proper use of fire extinguishers.</li> <li>b. Apply proper fire drill procedures to assist guests and relate the importance of the location of fire exits and alarms.</li> <li>c. Apply the proper procedures to assist in preventing the spread of fire.</li> <li>d. Recognize the procedures to use in the event of being trapped by fire.</li> </ul>
4. Examine the regulations for hazardous chemicals. <small>DOK 2, HT.5, HT-LOD.11, HT-LOD.12, HT-RFB.8</small>	<ul style="list-style-type: none"> <li>a. Identify OSHA and its function, identify and discuss the importance of HazCom, and identify and discuss the importance of MSDS.</li> </ul>
5. Explain general guidelines for handling medical emergencies and contingency procedures for other emergencies. <small>DOK 2, HT.5, HT-LOD.11, HT-LOD.12, HT-RFB.8</small>	<ul style="list-style-type: none"> <li>a. Discuss general guidelines for handling medical emergencies.</li> <li>b. Practice contingency procedures for other emergencies.</li> </ul>

# Scenario

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## **The Risk Management Process**

### **Unit 12**

Risk management is a cycle. That means that it is not something that gets checked off a "to do" list but it is a continuous activity. Having a risk management process means that your organization knows and understands the risks to which you are exposed. It also means that your organization has deliberately evaluated the risks and has strategies in place to remove the risk altogether, reduce the likelihood of the risk happening, or minimize harm in the event that something happens.

You are the front desk agent for a full-service hotel. The hotel is implementing a new risk management process and wants to include several employees in the development process. You have been asked to identify risks in the front office area, plot them on a risk map, and suggest strategies for managing these risks.

As you begin your risk assessment, focus on two fundamental questions:

1. What can go wrong?
2. What will we do to prevent the harm from occurring in the first place and in response to the harm or loss if it actually happens?

### **Identify the risks**

The very first step is to identify the risks. Ask yourself what can go wrong. Every activity of an organization poses a risk, so brainstorm and document the risks.

Consider both the general risks (that could happen to any organization) and the risks specific to your organization.

Risks can be:

- abuse that is either one-time or ongoing (physical, emotional, psychosocial, sexual, financial);
- personal injury;
- medical;
- environmental;
- property;
- financial; or
- reputation and goodwill.

### **Assess the risks**

If you have done a thorough job of identifying risks, you may end up with a long (and overwhelming) list.

The next step is to assess each of the risks based on the likelihood or frequency of the risk occurring and the severity of the consequences.



Using a risk map to plot the likelihood of occurrence and the severity of the consequences will help you prioritize your next steps.

### **Develop strategies for managing risks**

Consider the most appropriate risk management strategies for each identified risk:

- Avoidance - Stop providing the service or doing the activity because it is too risky.
- Acceptance - Some risky activities are central to the mission of an organization and an organization will choose to accept the risks.
- Modification - Change the activity to reduce the likelihood of the risk occurring or reduce the severity of the consequences. Policies and procedures are an important part of this risk management strategy because they communicate expectations and define boundaries. Learn more about writing policies and procedures.
- Transfer or sharing - Purchase insurance or transfer the risk to another organization through signing a contractual agreement with other organizations to share the risk (e.g., having a contractual agreement with a bus company to transport clients rather than having staff drive clients).

### **Attachments for Scenario**

See the rubric in the teacher resources document found on the RCU Curriculum Download page: [www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx](http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx)

## Unit 13: Accounting and Operational Finance

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<b>Competencies and Suggested Objectives</b>	
1. Apply proper accounting techniques in the collection and finalization of all guest accounts. DOK 2, HT.2, HT-LOD.5, HT-LOD.10, HT-LOD.12, HT-RFB.1, HT-RFB.5, HT-RFB.6, HT-RFB.8, HT-RFB.10	<ol style="list-style-type: none"><li>a. Demonstrate appropriate cash and check handling techniques for all transactions at the front desk.</li><li>b. Apply proper techniques for credit card use at check-in and check-out.</li><li>c. Demonstrate the correct procedures for posting charges and payments to guest accounts.</li><li>d. Apply correct procedures for direct bill accounts.</li><li>e. Complete a night audit.</li></ol>
2. Understand the financial processes and when each should occur during the financial reporting cycle. DOK 2, HT.2, HT-LOD.5, HT-LOD.10, HT-LOD.12, HT-RFB.1, HT-RFB.5, HT-RFB.6, HT-RFB.8, HT-RFB.10	<ol style="list-style-type: none"><li>a. Explain the need for protecting the guest's right to privacy.</li><li>b. Explain the need for protecting guests against identity theft and fraud.</li><li>c. Demonstrate the financial transactions that occur during the guest cycle.</li><li>d. Identify the type of sensitive guest information at risk during a financial transaction.</li><li>e. Identify the financial processes used to protect guest privacy.</li><li>f. Explain the financial purpose of an employee code of conduct.</li><li>g. Indicate the financial opportunities for employees to influence guest spending during the guest cycle.</li></ol>
3. Identify the process and procedures used by leadership for managing operational finance. DOK 2, HT.2, HT-LOD.5, HT-LOD.10, HT-LOD.12, HT-RFB.1, HT-RFB.5, HT-RFB.6, HT-RFB.8, HT-RFB.10	<ol style="list-style-type: none"><li>a. Explain how revenue and cost centers are managed to ensure a property's profitability.</li><li>b. Explain how various budgets are created and managed.</li><li>c. Differentiate between the various budgets used by a hospitality and tourism property.</li></ol>

# Scenario

## **Financial Transaction Process**

### **Unit 13**

You are the front desk agent at a limited-service hotel chain. You received a call from a customer accusing that someone at the hotel was using his credit card information to make online purchases. The hotel's financial transaction process, if properly followed, protects the personal information of each guest.

Outline the steps you will use to investigate this complaint.

## Unit 14: Travel and Tourism

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<b>Competencies and Suggested Objectives</b>	
1. Explore travel locations world-wide.	DOK 2, HT-TT.1, HT-TT.2
a. Identify countries and cities of major tourist attractions.	
b. Identify the continents and oceans.	
c. Identify the history and culture of countries and other major points of interest.	
d. Describe the foreign currency and exchange rate which affects travel decisions world-wide.	
2. Discuss the requirements of becoming an accredited travel agency and/or tour guide.	DOK 2, HT.2, HT.6, HT-TT.9 HT-TT.10, HT-TT.11, HT-TT.12
a. Identify the types of tour guides and travel agencies.	
b. Identify accrediting procedures.	
c. Compare and contrast intersell/Internet agencies to a traditional travel agency.	
3. Demonstrate activities associated with organizing, booking, and conducting group tours.	DOK 2, HT-TT.1, HT-TT.2, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11
a. Identify the special services and needs of the client.	
b. Prepare a client travel package.	
c. Book transportation, accommodations, and activities.	
d. Prepare itinerary computing cost and selling price.	
e. Discuss the importance of customer satisfaction and feedback.	

# Scenario

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## **Developing a Tourism Package**

### **Unit 14**

Business has slowed down significantly at the travel agency where you work and the owner may have to lay you off if business does not begin to pick up. To boost business, you have decided to put together a tourism package that is attractive, feasible, profitable, and sustainable. Your package is going to be built around one of Mississippi's thematic trails focused on the state's rich culture and heritage.

Putting the package together

1. Select one of the thematic trails
  - Mississippi Blues Trail
  - Mississippi Agritourism Trail
  - Mississippi Country Music Trail
  - Mississippi Culinary Trail
  - Mississippi Freedom Trail
  - Mississippi Literary Trail
2. Give a name to your package that will convey the type of experience you are offering.
3. Determine the target market that will best suit your package (e.g., senior citizens, backpackers, special interest like birders, golfers, etc.).
4. Determine the attractions, accommodation, tours, and so forth, along your trail that can be built into your package.
5. Draft a number of activities using the combination of industry sectors that will best provide the experience offered to the market you are targeting.
6. Determine ways to partner with industry sectors to promote your package.
7. Create a brochure that can be printed and emailed to customers.
8. Determine a strategy for marketing your package online.

# Unit 15: Hospitality Sales and Marketing Management

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<b>Competencies and Suggested Objectives</b>	
1.	<p>Understand the management responsibilities of the marketing department’s leadership team. <small>DOK 2, HT.1, HT-TT.3, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11, HT-TT.12</small></p> <ol style="list-style-type: none"> <li>a. Explain how a marketing plan is developed and implemented.</li> <li>b. Explain how target markets are selected.</li> <li>c. Identify the tools used for promoting a variety of hospitality and tourism products and services.</li> </ol>
2.	<p>Develop advertising campaigns using appropriate media. <small>DOK 2, HT.1, HT-TT.3, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11, HT-TT.12</small></p> <ol style="list-style-type: none"> <li>a. Determine what avenue to follow based on market research.</li> <li>b. Develop an advertising campaign.</li> <li>c. Implement and promote campaign strategies.</li> </ol>
3.	<p>Develop a promotional campaign using a promotional mix. <small>DOK 2, HT.1, HT-TT.3, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11, HT-TT.12</small></p> <ol style="list-style-type: none"> <li>a. Explain the role of promotion.</li> <li>b. Explain the types of promotion to include personal selling, sales promotions, publicity, and advertising.</li> <li>c. Explain the concept of a promotional mix.</li> <li>d. Coordinate promotional activities.</li> <li>e. Identify the purpose of communicating marketing messages to guests.</li> </ol>
4.	<p>Identify the role of sales in the hospitality and tourism industry. <small>DOK 2, HT.1, HT-TT.3, HT-TT.6, HT-TT.7, HT-TT.8, HT-TT.10, HT-TT.11, HT-TT.12</small></p> <ol style="list-style-type: none"> <li>a. Identify the key objectives and various tasks of a hospitality and tourism sales department.</li> <li>b. Identify the structure and positions found in a hospitality and tourism sales department.</li> <li>c. Explain the responsibilities of a hospitality and tourism sales professional.</li> <li>d. Identify the purpose of prospecting and the role of the Internet, networking, relationship building, strategic alliances, and referrals in hospitality and tourism sales.</li> <li>e. Identify the types of sales, the purpose of upgrading sales, and the role of specialty sales in hospitality and tourism.</li> </ol>

# Scenario

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## **Prospecting Using Social Media**

### **Unit 15**

You have recently been hired as a marketing assistant for Main Street Cleveland (MSC), a non-profit organization that promotes development and growth of the downtown historic district. MSC uses ads in the Yellow Pages, sends out direct mail pieces, and pays top dollar for TV commercials to promote the downtown area. The problem with this approach is that MSC has been spending a ton of money to push their message out to everyone because they are not sure how to strategically target viable prospects. The board of directors is not happy with this strategy and the executive director wants you to put together a strategy that is more effective and less costly.

Put together a plan for MSC using social media to promote the downtown historic district.

# Unit 16: Employability Skills

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<b>Competencies and Suggested Objectives</b>	
1. Demonstrate proper job application techniques.	DOK 2, HT.2, HT-RFB.9
a. Demonstrate proper procedures for filling out an application.	
b. Demonstrate proper procedures for preparing a resume.	
c. Demonstrate proper interview techniques.	
2. Apply the proper business etiquette skills needed for employability.	DOK 2, HT.6, HT-RFB.9
a. Demonstrate proper communication skills.	
b. Discuss the benefits of proper hygiene.	
c. Demonstrate proper business attire.	
d. Demonstrate projecting a professional image and on-the-job relationships.	

## Scenario

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### **Getting to Know YOU**

#### **Unit 16**

#### Electronic Career Portfolio

You have only been working in your new job for three months and you are already looking for another job. You are very discouraged because you have not been very happy with any of your past jobs either. This is very depressing because you are young and have many years of work ahead of you.

Instead of immediately looking for a new job, you decide to assess your personal strengths and explore careers for which you are better suited.

Search the Internet for free resources to assess your strengths and help you to determine a good career fit. Using this information, create a six-month, one-year, and five-year plan to achieve employment bliss. Be sure to include your strengths and goals.



## Unit 17: Special Projects

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<b>Competencies and Suggested Objectives</b>
<ol style="list-style-type: none"><li>1. Investigate new and emerging technologies, practices, trends, and issues associated with entry-level positions in lodging, restaurant, and tourism management. <small>DOK 2, HT.2, H.6, HT-RFB.9</small><ol style="list-style-type: none"><li>a. Explore a new and emerging technology associated with hotel, restaurant, and tourism management.</li><li>b. Investigate a current trend or issue associated with hotel, restaurant, and tourism Management.</li></ol></li></ol>
<ol style="list-style-type: none"><li>2. Complete school-to-careers activities related to hotel, restaurant, and tourism management. <small>DOK 2, HT.2, HT.6, HT-RFB.9</small><ol style="list-style-type: none"><li>a. Participate in a school-to-careers activity (shadowing, mentoring, career fair, etc.) related to hotel, restaurant, and tourism management.</li><li>b. Investigate educational opportunities related to hotel, restaurant, and tourism management at the postsecondary level.</li><li>c. Describe national standards and certification/licensing procedures related to hotel, restaurant, and tourism management.</li><li>d. Describe the role of trade organizations, associations, and unions as related to hotel, restaurant, and tourism management.</li></ol></li></ol>

## Scenario

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### Unit 17

**No scenario for this unit**

# Student Competency Profile

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**Student's Name:** \_\_\_\_\_

This record is intended to serve as a method of noting student achievement of the competencies in each unit. It can be duplicated for each student, and it can serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

<b>Unit 1: Program Orientation</b>	
	1. Discuss policies and procedures in the educational and occupational environments
	2. Explore vocational student organizations.
<b>Unit 2: Introduction to Hospitality and Tourism Industry</b>	
	1. Evaluate the nature and scope of the Hospitality & Tourism Career Cluster™ and the role of hospitality and tourism in society and the economy.
	2. Describe career opportunities and means to attain those opportunities in each of the Hospitality & Tourism Career Pathways.
<b>Unit 3: Customer Service in the Hospitality and Tourism Industry</b>	
	1. Demonstrate hospitality and tourism customer service skills that meet customers' needs.
	2. Demonstrate communication skills as they relate to customer service.
<b>Unit 4: Organization of Lodging Property</b>	
	1. Classify the different types of hotels and describe hotel departments and their functions.
	2. Perform the basic tasks of front office employees.
	3. Identify the responsibilities of the front office and the front desk along with the role each plays with guests.
	4. Identify the financial processes and when each should occur during the financial reporting cycle.
	5. Describe the duties and procedures used by the housekeeping department.
	6. Understand the role of the facilities management department at a hotel.
<b>Unit 5: Security in Lodging Operations</b>	
	1. Explain the role of security in protecting people and property during criminal, severe weather, and emergency situations.
	2. Apply security procedures to protect property of guests and employees.
<b>Unit 6: Food and Beverage Services</b>	
	1. Explain the role of food service within the hospitality industry.
	2. Explain proper sanitation and safety procedures for food service operations.

	3.	Demonstrate proper techniques for food service.
<b>Unit 7: Banquet and Catering</b>		
	1.	Discuss and demonstrate proper banquet techniques.
	2.	Discuss catering functions and special events.
<b>Unit 8: Resort Operations</b>		
	1.	Understand the purpose of resorts, cruise lines, recreational vehicles, and tent camping in the hospitality and tourism industry.
<b>Unit 9: Hospitality Sales and Marketing</b>		
	1.	Understand the role of sales in the hospitality and tourism industry.
	2.	Understand the role of marketing in the hospitality and tourism industry.
<b>Unit 10: Computerized Front Office Procedures</b>		
	1.	Perform the appropriate reservation procedures using computerized reservation systems.
	2.	Apply proper computerized techniques in check-in and check-out processes.
	3.	Demonstrate the use of front office equipment
<b>Unit 11: Management and Human Resources within the Hospitality Industry</b>		
	1.	Demonstrate proper management skills.
	2.	Understand the role of leadership in the hospitality and tourism industry.
	3.	Demonstrate appropriate processes and methods used by managers to communicate with employees.
	4.	Understand the duties and responsibilities of the front office manager.
	5.	Understand the key duties and responsibilities of the housekeeping management team.
	6.	Understand the key duties and responsibilities of the facilities management leadership team.
	7.	Understand the duties of the food and beverage service management team.
	8.	Understand the purpose of the human resources department and how human resources is utilized in a leadership position.
<b>Unit 12: Safety and Risk Management</b>		
	1.	Understand the purpose of maintaining a safe, healthy environment for guests and employees.
	2.	Understand the processes used to maintain a safe and healthy environment for guests and employees.
	3.	Identify the procedures to follow in the event of a fire.
	4.	Examine the regulations for hazardous chemicals.
	5.	Explain general guidelines for handling medical emergencies and contingency procedures for other emergencies.
<b>Unit 13: Accounting and Operational Finance</b>		
	1.	Apply proper accounting techniques in the collection and finalization of all guest

		accounts.
	2.	Understand the financial processes and when each should occur during the financial reporting cycle.
	3.	Identify the process and procedures used by leadership for managing operational finance.
<b>Unit 14: Travel and Tourism</b>		
	1.	Explore travel locations world-wide
	2.	Discuss the requirements of becoming an accredited travel agency and/or tour guide.
	3.	Demonstrate activities associated with organizing, booking, and conducting group tours.
<b>Unit 15: Hospitality Sales and Marketing Management</b>		
	1.	Understand the management responsibilities of the marketing department's leadership team.
	2.	Develop advertising campaigns using appropriate media.
	3.	Develop a promotional campaign using a promotional mix.
	4.	Identify the role of sales in the hospitality and tourism industry.
<b>Unit 16: Employability Skills</b>		
	1.	Demonstrate proper job application techniques.
	2.	Apply the proper business etiquette skills needed for employability.
<b>Unit 17: Special Projects</b>		
	1.	Investigate new and emerging technologies, practices, trends, and issues associated with entry-level positions in lodging, restaurant, and tourism management.
	2.	Complete school-to-careers activities related to hotel, restaurant, and tourism management.

# Appendix A: References

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## Research Synopsis

**The following resources were used throughout the Lodging, Restaurant, and Tourism curriculum.**

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Walker, J. R. (2008). *Exploring the hospitality industry*. Upper Saddle River, NJ: Pearson Prentice Hall. Wade, D. (2006). *Successful restaurant management: From vision to execution*. Clifton Park, NY: Thomson Delmar Learning.

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Kappa, M., Nitschke, A., & Schappert, P. (1997). *Housekeeping management*. Lansing, MI: Educational Institute of America Hotel & Motel Association.

#### **Unit 5: Security in Lodging Operations**

Brown, B. & Jefferies, J. P. (2009). *Understanding hospitality law (5th ed.)*. Lansing, MI: Educational Institute of America Hotel & Motel Association.

#### **Unit 6: Food and Beverage Services**

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Strianese, A. J., Strianese, P. P., & Haines, R. G. (2007). *Math principles for food service occupations (5<sup>th</sup> ed.)*. Albany, NY: Delmar Thomson Learning.

#### **Unit 7: Banquet and Catering**

Strianese, A. J., & Strianese, P. P. (2008). *Dining room and banquet management (4<sup>th</sup> ed.)*. Clifton Park, NY: Thomson/Delmar Learning.

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#### **Unit 9: Hospitality Sales and Marketing**

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# Appendix B: Industry Standards

<b>Crosswalk for Lodging, Hospitality, and Tourism Management</b>												
	Units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11
<b>Hospitality and Tourism Management Common Career Technical Core</b>												
Hospitality and Tourism Management (HT)												
HT.1		✓								✓		
HT.2												
HT.3				✓								
HT.4												✓
HT.5						✓						✓
HT.6		✓	✓									
<b>Lodging Career Pathway (HT-LOD)</b>												
HT-LOD.1		✓		✓	✓						✓	✓
HT-LOD.2												✓
HT-LOD.3					✓							✓
HT-LOD.4					✓							✓
HT-LOD.5					✓							
HT-LOD.6					✓							✓
HT-LOD.7					✓						✓	✓
HT-LOD.8					✓		✓				✓	✓
HT-LOD.9					✓							✓
HT-LOD.10					✓						✓	✓
HT-LOD.11					✓	✓						✓
HT-LOD.12					✓	✓						✓
<b>Restaurants &amp; Food/ Beverage Services Career Pathway (HT-RFB)</b>												
HT-RFB.1							✓					
HT-RFB.2							✓					✓
HT-RFB.3							✓					
HT-RFB.4							✓					✓
HT-RFB.5							✓	✓				✓
HT-RFB.6							✓					
HT-RFB.7							✓					
HT-RFB.8							✓	✓				✓
HT-RFB.9		✓					✓					✓
HT-RFB.10				✓			✓					✓
HT-RFB.11												
<b>Travel &amp; Tourism Career Pathway (HT-TT)</b>												
HT-TT.1									✓			
HT-TT.2												
HT-TT.3										✓		
HT-TT.4												✓
HT-TT.5												
HT-TT.6									✓	✓		
HT-TT.7										✓		
HT-TT.8									✓	✓		
HT-TT.9									✓			
HT-TT.10									✓	✓		
HT-TT.11										✓		
HT-TT.12				✓					✓	✓		



## Crosswalk for Lodging, Hospitality, and Tourism Management

	Units	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17						
<b>Hospitality and Tourism Management Common Career Technical Core</b>													
Hospitality and Tourism Management (HT)													
HT.1					✓								
HT.2			✓	✓		✓	✓						
HT.3													
HT.4													
HT.5		✓											
HT.6				✓		✓	✓						
HT-LOD.1													
HT-LOD.2													
HT-LOD.3													
HT-LOD.4													
HT-LOD.5			✓										
HT-LOD.6													
HT-LOD.7													
HT-LOD.8													
HT-LOD.9													
HT-LOD.10			✓										
HT-LOD.11		✓											
HT-LOD.12		✓	✓										
HT-RFB.1		✓	✓										
HT-RFB.2													
HT-RFB.3													
HT-RFB.4													
HT-RFB.5			✓										
HT-RFB.6			✓										
HT-RFB.7													
HT-RFB.8		✓	✓										
HT-RFB.9						✓	✓						
HT-RFB.10			✓										
HT-RFB.11													
HT-TT.1				✓									
HT-TT.2				✓									
HT-TT.3					✓								
HT-TT.4													
HT-TT.5													
HT-TT.6				✓	✓								
HT-TT.7				✓	✓								
HT-TT.8				✓	✓								
HT-TT.9				✓									
HT-TT.10				✓	✓								
HT-TT.11				✓	✓								
HT-TT.12				✓	✓								

## **Introduction to the Common Career Technical Core**

The Common Career Technical Core (CCTC) is an important step forward for the Career Technical Education (CTE) community. For the first time in the history of CTE, states throughout the nation have a common benchmark for what students should know and be able to do after completing a program of study.

The CCTC is a state-led initiative, with 42 states, the District of Columbia and Palau participating in the development stage. Business and industry representatives, educators and others helped guide the development of the CCTC from beginning to end to ensure CTE students will have the knowledge and skills to thrive in a global economy.

The resulting CCTC is a set of rigorous, high-quality standards for CTE that states can adopt voluntarily. The CCTC includes a set of standards for each of the 16 Career Clusters™ and their corresponding Career Pathways that define what students should know and be able to do after completing instruction in a program of study.

The CCTC also includes an overarching set of Career Ready Practices that apply to all programs of study. The Career Ready Practices include 12 statements that address the knowledge, skills and dispositions that are important to becoming career ready.

### **Career Ready Practices**

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.  
Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
2. Apply appropriate academic and technical skills.  
Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

3. Attend to personal health and financial well-being.  
Career-ready individuals understand the relationship between personal health, workplace performance and personal well-being; they act on that understanding to regularly practice healthy diet, exercise and mental health activities. Career-ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.
4. Communicate clearly, effectively and with reason.  
Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/ or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice and organization and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
5. Consider the environmental, social and economic impacts of decisions.  
Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment. They are aware of and utilize new technologies, understandings, procedures, materials and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and profitability of the organization.
6. Demonstrate creativity and innovation.  
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
7. Employ valid and reliable research strategies.  
Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use a reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices. They use an informed process to test new ideas, information and practices in their workplace situation.
8. Utilize critical thinking to make sense of problems and persevere in solving them.  
Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem. They thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully

consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

9. Model integrity, ethical leadership and effective management.  
Career-ready individuals consistently act in ways that align to personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the direction and actions of a team or organization, and they apply insights into human behavior to change others' actions, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morale and organizational culture.
10. Plan education and career path aligned to personal goals.  
Career-ready individuals take personal ownership of their own educational and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the educational and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors and other experts to assist in the planning and execution of career and personal goals.
11. Use technology to enhance productivity.  
Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring and using new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks -- personal and organizational -- of technology applications, and they take actions to prevent or mitigate these risks.
12. Work productively in teams while using cultural/global competence

## **The Common Career Technical Core Standards**

### Hospitality & Tourism Career Cluster™ (HT)

1. Describe the key components of marketing and promoting hospitality and tourism products and services.
2. Evaluate the nature and scope of the Hospitality & Tourism Career Cluster™ and the role of hospitality and tourism in society and the economy.
3. Demonstrate hospitality and tourism customer service skills that meet customers' needs.
4. Describe employee rights and responsibilities and employers' obligations concerning occupational health and safety in the hospitality and tourism workplace.
5. Identify potential, real and perceived hazards and emergency situations and determine the appropriate safety and security measures in the hospitality and tourism workplace.

6. Describe career opportunities and means to attain those opportunities in each of the Hospitality & Tourism Career Pathways.

#### Lodging Career Pathway (HT-LOD)

1. Use various communication technologies to accomplish work tasks in lodging facilities.
2. Explain the role and importance of housekeeping operations to lodging facility.
3. Allocate staff positions to meet the needs of various lodging departments.
4. Describe the role and responsibilities of lodging managers.
5. Compare the advantages and disadvantages of independently owned and chain-affiliated lodging facilities.
6. Analyze the departmental interrelationships of a lodging facility.
7. Explain various check-in and check-out procedures used in the lodging industry.
8. Understand reservation procedures used in the lodging industry.
9. Explain how room access policies and procedures ensure guest safety and minimize risks to the lodging facility.
10. Explain how cash control procedures are used in the lodging industry.
11. Explain how guests and property are protected to minimize losses or liabilities in the lodging facility.
12. Explain the basic legal issues in lodging management.

#### Restaurants & Food/ Beverage Services Career Pathway (HT-RFB)

1. Describe ethical and legal responsibilities in food and beverage service facilities.
2. Demonstrate safety and sanitation procedures in food and beverage service facilities.
3. Use information from cultural and geographical studies to guide customer service decisions in food and beverage service facilities.
4. Demonstrate leadership qualities and collaboration with others.
5. Research costs, pricing, market demands and marketing strategies to manage profitability in food and beverage service facilities.
6. Explain the benefits of the use of computerized systems to manage food service operations and guest service.
7. Utilize technical resources for food services and beverage operations to update or enhance present practice.
8. Implement standard operating procedures related to food and beverage production and guest service.
9. Describe career opportunities and qualifications in the restaurant and food service industry.
10. Apply listening, reading, writing and speaking skills to enhance operations and customer service in food and beverage service facilities.

#### Travel & Tourism Career Pathway (HT-TT)

1. Apply information about time zones, seasons and domestic and international maps to create or enhance travel.
2. Apply unit and time conversion skills to develop travel schedules and compute cost, distance and time (including travel time) factors.

3. Analyze cultural diversity factors to enhance travel planning.
4. Assess the potential (real and perceived) hazards related to multiple environments, and recommend appropriate safety, health and security measures for travelers.
5. Develop a safety and security plan containing proactive and reactive solutions to manage emergency situations for travelers and staff.
6. Use common travel and tourism terminology used to communicate within the industry.
7. Customize travel with diverse transportation, lodging, cruise and food options.
8. Compare and contrast services and products from related industries to understand and evaluate how they impact the delivery of travel and tourism products and services to customers.
9. Identify the community elements necessary to maintain cooperative tourism development efforts.
10. Develop a travel product that matches customer needs, wants and expectations.
11. Design promotional packages to effectively market travel and tourism.
12. Select the most effective communication technique and media venue to convey travel marketing information to a target audience.

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## Appendix C: 21st Century Skills<sup>1</sup>

<b>21<sup>st</sup> Century Crosswalk for Lodging, Hospitality, and Tourism Management</b>											
	Units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
21 <sup>st</sup> Century Standards											
CS1		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CS2		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CS3		✓	✓		✓	✓	✓		✓	✓	✓
CS4		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CS5		✓	✓	✓	✓	✓	✓		✓	✓	✓
CS6				✓	✓						
CS7					✓						
CS8					✓						
CS9					✓						
CS10											
CS11											
CS12			✓	✓				✓	✓		
CS13			✓	✓				✓	✓		
CS14			✓	✓				✓	✓		
CS15			✓	✓				✓	✓		
CS16			✓	✓				✓	✓		
		Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17			
CS1		✓	✓	✓	✓	✓	✓				
CS2		✓	✓	✓		✓	✓				
CS3		✓				✓					
CS4		✓	✓	✓	✓	✓	✓				
CS5		✓	✓		✓	✓	✓				
CS6					✓		✓				
CS7					✓						
CS8											
CS9											
CS10											
CS11											
CS12						✓	✓	✓			
CS13						✓	✓	✓			
CS14						✓	✓	✓			
CS15						✓	✓	✓			
CS16						✓	✓	✓			

### CSS1-21st Century Themes

#### **CS1 Global Awareness**

1. Using 21st century skills to understand and address global issues
2. Learning from and working collaboratively with individuals representing diverse cultures, religions, and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts
3. Understanding other nations and cultures, including the use of non-English languages

<sup>1</sup> *21st century skills*. (n.d.). Washington, DC: Partnership for 21st Century Skills.

**CS2 Financial, Economic, Business, and Entrepreneurial Literacy**

1. Knowing how to make appropriate personal economic choices
2. Understanding the role of the economy in society
3. Using entrepreneurial skills to enhance workplace productivity and career options

**CS3 Civic Literacy**

1. Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
2. Exercising the rights and obligations of citizenship at local, state, national, and global levels
3. Understanding the local and global implications of civic decisions

**CS4 Health Literacy**

1. Obtaining, interpreting, and understanding basic health information and services and using such information and services in ways that enhance health
2. Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction
3. Using available information to make appropriate health-related decisions
4. Establishing and monitoring personal and family health goals
5. Understanding national and international public health and safety issues

**CS5 Environmental Literacy**

1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems.
2. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
4. Take individual and collective action toward addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).

**CSS2-Learning and Innovation Skills**

**CS6 Creativity and Innovation**

1. Think Creatively
2. Work Creatively with Others
3. Implement Innovations

**CS7 Critical Thinking and Problem Solving**

1. Reason Effectively
2. Use Systems Thinking
3. Make Judgments and Decisions
4. Solve Problems

**CS8 Communication and Collaboration**

1. Communicate Clearly
2. Collaborate with Others



CSS3-Information, Media and Technology Skills

**CS9 Information Literacy**

1. Access and Evaluate Information
2. Use and Manage Information

**CS10 Media Literacy**

1. Analyze Media
2. Create Media Products

**CS11 ICT Literacy**

1. Apply Technology Effectively

CSS4-Life and Career Skills

**CS12 Flexibility and Adaptability**

1. Adapt to change
2. Be Flexible

**CS13 Initiative and Self-Direction**

1. Manage Goals and Time
2. Work Independently
3. Be Self-directed Learners

**CS14 Social and Cross-Cultural Skills**

1. Interact Effectively with others
2. Work Effectively in Diverse Teams

**CS15 Productivity and Accountability**

1. Manage Projects
2. Produce Results

**CS16 Leadership and Responsibility**

1. Guide and Lead Others
2. Be Responsible to Others

# Appendix D: Common Core Standards

Common Core Crosswalk for English/Language Arts (11-12)																		
	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>Common Core Standards</b>																		
RL.11.1.									✓						✓			
RL.11.2.		✓																
RL.11.3.																		
RL.11.4.												✓						
RL.11.5.												✓						
RL.11.6.																		
RL.11.7.																		
RL.11.8.																		
RL.11.9.																		
RL.11.10.																		
RI.11.1.			✓	✓	✓		✓		✓	✓					✓	✓		
RI.11.2.			✓		✓									✓				
RI.11.3.		✓	✓		✓		✓			✓			✓	✓		✓	✓	✓
RI.11.4.		✓	✓		✓							✓						
RI.11.5.																		
RI.11.6.					✓							✓						
RI.11.7.		✓			✓							✓		✓	✓		✓	✓
RI.11.8.																		
RI.11.9.																		
RI.11.10.																		
W.11.1.												✓						
W.11.2.												✓						
W.11.3.												✓						
W.11.4.												✓						
W.11.5.												✓						
W.11.6.												✓						
W.11.7.																		
W.11.8.												✓						
W.11.9.																		
W.11.10.												✓						
SL.11.1.			✓		✓													
SL.11.2.				✓	✓	✓	✓											
SL.11.3.										✓			✓			✓		
SL.11.4.				✓	✓		✓								✓			
SL.11.5.																		
SL.11.6.																		
L.11.1.																		
L.11.2.				✓							✓	✓						
L.11.3.				✓														
L.11.4.												✓						
L.11.5.											✓	✓						
L.11.6.		✓	✓									✓					✓	✓
RH.11.1.																		
RH.11.2.																		
RH.11.3.		✓	✓												✓		✓	✓
RH.11.4.												✓						
RH.11.5.												✓						
RH.11.6.																		
RH.11.7.											✓	✓						
RH.11.8.																		
RH.11.9.												✓						
RH.11.10.																		
RST.11.1.				✓						✓						✓		
RST.11.2.															✓			
RST.11.3.						✓					✓	✓						

RST.11.4.				✓							✓	✓	✓					
RST.11.5.		✓	✓		✓	✓				✓			✓	✓	✓			
RST.11.6.					✓		✓							✓				
RST.11.7.										✓	✓	✓						
RST.11.8.																		
RST.11.9.						✓				✓	✓	✓						
RST.11.10.																		
WHST.11.1.		✓	✓														✓	✓
WHST.11.2.																		
WHST.11.3.																		
WHST.11.4.				✓														
WHST.11.5.																		
WHST.11.6.			✓					✓			✓	✓			✓			
WHST.11.7.																		
WHST.11.8.																		
WHST.11.9.																		
WHST.11.10.																		

## Reading Standards for Literature (11-12)

### College and Career Readiness Anchor Standards for *Reading Literature*

#### Key Ideas and Details

RL.11.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

RL.11.2. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.

RL.11.3. Analyze the impact of the author’s choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).

#### Craft and Structure

RL.11.4. Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)

RL.11.5. Analyze how an author’s choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.

RL.11.6. Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).

## Integration of Knowledge and Ideas

RL.11.7. Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)

RL.11.8. (Not applicable to literature)

RL.11.9. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.

## Range of Reading and Level of Text Complexity

RL.11.10. By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.

## **Reading Standards for Informational Text (11-12)**

### **College and Career Readiness Anchor Standards for *Informational Text***

#### Key Ideas and Details

RI.11.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

RI.11.2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.

RI.11.3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.

#### Craft and Structure

RI.11.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines

the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

RI.11.5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

RI.11.6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.

### Integration of Knowledge and Ideas

RI.11.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

RI.11.8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., *The Federalist*, presidential addresses).

RI.11.9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including *The Declaration of Independence*, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.

### Range of Reading and Level of Text Complexity

RI.11.10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11–CCR text complexity band independently and proficiently.

## **College and Career Readiness Anchor Standards for *Writing***

### Text Types and Purposes

W.11.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

- a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.

b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.

c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

e. Provide a concluding statement or section that follows from and supports the argument presented.

W.11.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

- a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
- b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters
- c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
- d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
- e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

#### Production and Distribution of Writing

W.11.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

W.11.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12 on page 54.)

W.11.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

#### Research to Build and Present Knowledge

W.11.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

W.11.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

a. Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).

b. Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., *The Federalist*, presidential addresses]”).

### Range of Writing

W.11.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

## **College and Career Readiness Anchor Standards for *Speaking and Listening***

### Comprehension and Collaboration

SL.11.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.



SL.11.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

SL.11.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

### Presentation of Knowledge and Ideas

SL.11.4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

SL.11.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

SL.11.6. Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 on page 54 for specific expectations.)

## **College and Career Readiness Anchor Standards for *Language***

### Conventions of Standard English

L.11.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.

b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.

L.11.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

a. Observe hyphenation conventions.

b. Spell correctly.

## Knowledge of Language

L.11.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

- a. Vary syntax for effect, consulting references (e.g., Tufte’s *Artful Sentences*) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

## Vocabulary Acquisition and Use

L.11.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.

- a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.
- b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
- c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
- d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.11.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
- b. Analyze nuances in the meaning of words with similar denotations.

L.11.6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

## **Reading Standards for Literacy in History/Social Studies (11-12)**

### Key Ideas and Details

RH.11.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

RH.11.2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas

RH.11.3. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain

### Craft and Structure

RH.11.4. Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

RH.11.5. Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.

RH.11.6. Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.

### Integration of Knowledge and Ideas

RH.11.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

RH.11.8. Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.

RH.11.9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.

### Range of Reading and Level of Text Complexity

RH.11.10. By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

## **Reading Standards for Literacy in Science and Technical Subjects (11-12)**

### Key Ideas and Details

RST.11.1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

RST.11.2. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

RST.11.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

### Craft and Structure

RST.11.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

RST.11.5. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

RST.11.6. Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

### Integration of Knowledge and Ideas

RST.11.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

RST.11.8. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

RST.11.9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

## Range of Reading and Level of Text Complexity

RST.11.10. By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently.

## **Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)**

### Text Types and Purposes

WHST.11.1. Write arguments focused on discipline-specific content.

- a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.
- b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience’s knowledge level, concerns, values, and possible biases.
- c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
- d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- e. Provide a concluding statement or section that follows from or supports the argument presented.

WHST.11.2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

- a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.

- c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
- d. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
- e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).

WHST.11.3. (Not applicable as a separate requirement)

#### Production and Distribution of Writing

WHST.11.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

WHST.11.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

WHST.11.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

#### Research to Build and Present Knowledge

WHST.11.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

WHST.11.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

WHST.11.9. Draw evidence from informational texts to support analysis, reflection, and research.

## Range of Writing

WHST.11.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Common Core Crosswalk for Mathematics (11-12)																				
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<b>Common Core Standards</b>																				
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## Mathematics (High School)

### Number and Quantity

#### The Real Number System

N-RN.1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.

N-RN.2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.

N-RN.3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

#### Quantities

N-Q.1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N-Q.2. Define appropriate quantities for the purpose of descriptive modeling.

N-Q.3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

## The Complex Number System

- N-CN.1. Know there is a complex number  $i$  such that  $i^2 = -1$ , and every complex number has the form  $a + bi$  with  $a$  and  $b$  real.
- N-CN.2. Use the relation  $i^2 = -1$  and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
- N-CN.3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.
- N-CN.4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
- N-CN.5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example,  $(-1 + \sqrt{3}i)^3 = 8$  because  $(-1 + \sqrt{3}i)$  has modulus 2 and argument  $120^\circ$ .
- N-CN.6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.
- N-CN.7. Solve quadratic equations with real coefficients that have complex solutions.
- N-CN.8. (+) Extend polynomial identities to the complex numbers. For example, rewrite  $x^2 + 4$  as  $(x + 2i)(x - 2i)$ .
- N-CN.9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

## Vector and Matrix Quantities

- N-VM.1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g.,  $\mathbf{v}$ ,  $|\mathbf{v}|$ ,  $\|\mathbf{v}\|$ ,  $v$ ).
- N-VM.2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
- N-VM.3. (+) Solve problems involving velocity and other quantities that can be represented by vectors.
- N-VM.4. (+) Add and subtract vectors

N-VM.4.a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.

N-VM.4.b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.

N-VM.4.c. Understand vector subtraction  $v - w$  as  $v + (-w)$ , where  $-w$  is the additive inverse of  $w$ , with the same magnitude as  $w$  and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.

N-VM.5. (+) Multiply a vector by a scalar.

N-VM.5.a. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as  $c(v_x, v_y) = (cv_x, cv_y)$ .

N-VM.5.b. Compute the magnitude of a scalar multiple  $cv$  using  $\|cv\| = |c|v\|$ . Compute the direction of  $cv$  knowing that when  $|c|v \neq 0$ , the direction of  $cv$  is either along  $v$  (for  $c > 0$ ) or against  $v$  (for  $c < 0$ ).

N-VM.6. (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

N-VM.7. (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.

N-VM.8. (+) Add, subtract, and multiply matrices of appropriate dimensions.

N-VM.9. (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties

N-VM.10. (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.

N-VM.11. (+) Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.

N-VM.12. (+) Work with  $2 \times 2$  matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.

## Algebra

### Seeing structure in expressions

A-SSE.1. Interpret expressions that represent a quantity in terms of its context.

A-SSE.1.a. Interpret parts of an expression, such as terms, factors, and coefficients.

A-SSE.1.b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret  $P(1+r)^n$  as the product of  $P$  and a factor not depending on  $P$ .

A-SSE.2. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

A-SSE.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

A-SSE.3.a. Factor a quadratic expression to reveal the zeros of the function it defines.

A-SSE.3.b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

A-SSE.3.c. Use the properties of exponents to transform expressions for exponential functions.

A-SSE.4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.

### Arithmetic with Polynomials and Rational Expressions

A-APR.1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials

A-APR.2. Know and apply the Remainder Theorem: For a polynomial  $p(x)$  and a number  $a$ , the remainder on division by  $x - a$  is  $p(a)$ , so  $p(a) = 0$  if and only if  $(x - a)$  is a factor of  $p(x)$ .

A-APR.3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

A-APR.4. Prove polynomial identities and use them to describe numerical relationships.

A-APR.5. (+) Know and apply the Binomial Theorem for the expansion of  $(x + y)^n$  in powers of  $x$  and  $y$  for a positive integer  $n$ , where  $x$  and  $y$  are any numbers, with coefficients determined for example by Pascal's Triangle.

A-APR.6. Rewrite simple rational expressions in different forms; write  $a(x)/b(x)$  in the form  $q(x) + r(x)/b(x)$ , where  $a(x)$ ,  $b(x)$ ,  $q(x)$ , and  $r(x)$  are polynomials with the degree of  $r(x)$  less than the degree of  $b(x)$ , using inspection, long division, or, for the more complicated examples, a computer algebra system.

A-APR.7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

### Creating Equations

A-CED.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

A-CED.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

A-CED.3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.

A-CED.4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law  $V = IR$  to highlight resistance  $R$ .

### Reasoning with Equations and Inequalities

A-REI.1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

A-REI.2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

A-REI.3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

A-REI.4. Solve quadratic equations in one variable.

A-REI.4.a. Use the method of completing the square to transform any quadratic equation in  $x$  into an equation of the form  $(x - p)^2 = q$  that has the same solutions. Derive the quadratic formula from this form.

A-REI.4.b. Solve quadratic equations by inspection (e.g., for  $x^2 = 49$ ), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as  $a \pm bi$  for real numbers  $a$  and  $b$ .

A-REI.5. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

A-REI.6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

A-REI.7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line  $y = 3x$  and the circle  $x^2 + y^2 = 3$ .

A-REI.8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.

A-REI.9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension  $3 \times 3$  or greater).

A-REI.10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

A-REI.11. Explain why the  $x$ -coordinates of the points where the graphs of the equations  $y = f(x)$  and  $y = g(x)$  intersect are the solutions of the equation  $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where  $f(x)$  and/or  $g(x)$  are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

A-REI.12. Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

## Functions

### Interpreting Functions

F-IF.1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If  $f$  is a function and  $x$  is an element of its domain, then  $f(x)$  denotes the output of  $f$  corresponding to the input  $x$ . The graph of  $f$  is the graph of the equation  $y = f(x)$ .

F-IF.2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

F-IF.3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by  $f(0) = f(1) = 1$ ,  $f(n+1) = f(n) + f(n-1)$  for  $n \geq 1$ .

F-IF.4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

F-IF.5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function  $h(n)$  gives the number of person-hours it takes to assemble  $n$  engines in a factory, then the positive integers would be an appropriate domain for the function.

F-IF.6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

F-IF.7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

F-IF.7.a. Graph linear and quadratic functions and show intercepts, maxima, and minima.

F-IF.7.b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

F-IF.7.c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.

F-IF.7.d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.



F-IF.7.e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

F-IF.8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

F-IF.8.a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.

F-IF.8.b. Use the properties of exponents to interpret expressions for exponential functions.

F-IF.9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

### Building Functions

F-BF.1. Write a function that describes a relationship between two quantities.

F-BF.1.a. Determine an explicit expression, a recursive process, or steps for calculation from a context.

F-BF.1.b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

F-BF.1.c. (+) Compose functions. For example, if  $T(y)$  is the temperature in the atmosphere as a function of height, and  $h(t)$  is the height of a weather balloon as a function of time, then  $T(h(t))$  is the temperature at the location of the weather balloon as a function of time.

F-BF.2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

F-BF.3. Identify the effect on the graph of replacing  $f(x)$  by  $f(x) + k$ ,  $k f(x)$ ,  $f(kx)$ , and  $f(x + k)$  for specific values of  $k$  (both positive and negative); find the value of  $k$  given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

F-BF.4. Find inverse functions.

F-BF.4.a. Solve an equation of the form  $f(x) = c$  for a simple function  $f$  that has an inverse and write an expression for the inverse.

F-BF.4.b. (+) Verify by composition that one function is the inverse of another.

F-BF.4.c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.

F-BF.4.d. (+) Produce an invertible function from a non-invertible function by restricting the domain.

F-BF.5. (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

### Linear, Quadratic, and Exponential Models

F-LE.1. Distinguish between situations that can be modeled with linear functions and with exponential functions.

F-LE.1.a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

F-LE.1.b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

F-LE.1.c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another

F-LE.2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

F-LE.3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

F-LE.4. For exponential models, express as a logarithm the solution to  $ab^ct = d$  where  $a$ ,  $c$ , and  $d$  are numbers and the base  $b$  is 2, 10, or  $e$ ; evaluate the logarithm using technology.

F-LE.5. Interpret the parameters in a linear or exponential function in terms of a context.

## Trigonometric Functions

F-TF.1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

F-TF.2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

F-TF.3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for  $\pi/3$ ,  $\pi/4$  and  $\pi/6$ , and use the unit circle to express the values of sine, cosine, and tangent for  $\pi-x$ ,  $\pi+x$ , and  $2\pi-x$  in terms of their values for  $x$ , where  $x$  is any real number.

F-TF.4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

F-TF.5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

F-TF.6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.

F-TF.7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.

F-TF.8. Prove the Pythagorean identity  $\sin^2(\theta) + \cos^2(\theta) = 1$  and use it to find  $\sin(\theta)$ ,  $\cos(\theta)$ , or  $\tan(\theta)$  given  $\sin(\theta)$ ,  $\cos(\theta)$ , or  $\tan(\theta)$  and the quadrant of the angle.

F-TF.9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

## **Geometry**

### Congruence

G-CO.1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

G-CO.2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

G-CO.3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

G-CO.4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

G-CO.5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

G-CO.6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.

G-CO.7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

G-CO.8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

G-CO.9. Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.

G-CO.10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to  $180^\circ$ ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.

G-CO.11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

G-CO.12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

G-CO.13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

## Similarity, Right Triangles, and Trigonometry

G-SRT.1. Verify experimentally the properties of dilations given by a center and a scale factor:

G-SRT.1.a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.

G-SRT.1.b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

G-SRT.2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

G-SRT.3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

G-SRT.4. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.

G-SRT.5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

G-SRT.6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

G-SRT.7. Explain and use the relationship between the sine and cosine of complementary angles.

G-SRT.8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

G-SRT.9. (+) Derive the formula  $A = \frac{1}{2} ab \sin(C)$  for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

G-SRT.10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.

G-SRT.11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

## Circles

G-C.1. Prove that all circles are similar.

G-C.2. Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.

G-C.3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

G-C.4. (+) Construct a tangent line from a point outside a given circle to the circle.

G-C.5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

## Expressing Geometric Properties with Equations

G-GPE.1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

G-GPE.2. Derive the equation of a parabola given a focus and directrix.

G-GPE.3. (+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.

G-GPE.4. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point  $(1, \sqrt{3})$  lies on the circle centered at the origin and containing the point  $(0, 2)$ .

G-GPE.5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

G-GPE.6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

G-GPE.7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

## Geometric Measurement and Dimension

G-GMD.1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.

G-GMD.2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.

G-GMD.3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

G-GMD.4. Identify the shapes of two-dimensional cross-sections of three dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

## Modeling with Geometry

G-MG.1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

G-MG.2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

G-MG.3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

## **Statistics and Probability**

### Interpreting Categorical and Quantitative Data

S-ID.1. Represent data with plots on the real number line (dot plots, histograms, and box plots).

S-ID.2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

S-ID.3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

S-ID.4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate.

Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

S-ID.5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

S-ID.6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

S-ID.6.a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.

S-ID.6.b. Informally assess the fit of a function by plotting and analyzing residuals.

S-ID.6.c. Fit a linear function for a scatter plot that suggests a linear association.

S-ID.7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

S-ID.8. Compute (using technology) and interpret the correlation coefficient of a linear fit.

S-ID.9. Distinguish between correlation and causation.

### Making Inferences and Justifying Conclusions

S-IC.1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

S-IC.2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

S-IC.3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

S-IC.4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

S-IC.5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

S-IC.6. Evaluate reports based on data.



## Conditional Probability and the Rules of Probability

S-CP.1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).

S-CP.2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.

S-CP.3. Understand the conditional probability of A given B as  $P(A \text{ and } B)/P(B)$ , and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

S-CP.4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.

S-CP.5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.

S-CP.6. Find the conditional probability of A given B as the fraction of B’s outcomes that also belong to A, and interpret the answer in terms of the model.

S-CP.7. Apply the Addition Rule,  $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ , and interpret the answer in terms of the model.

S-CP.8. (+) Apply the general Multiplication Rule in a uniform probability model,  $P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B)$ , and interpret the answer in terms of the model.

S-CP.9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.

## Using Probability to Make Decisions

S-MD.1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

S-MD.2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

S-MD.3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

S-MD.4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

S-MD.5. (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

S-MD.5.a. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.

S-MD.5.b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

S-MD.6. (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

S-MD.7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

## Appendix E: National Educational Technology Standards for Students (NETS-S)

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NETS Crosswalk for Lodging, Hospitality, and Tourism Management											
	Course	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
<b>NETS Standards</b>											
T1		✓	✓	✓	✓	✓				✓	
T2		✓	✓		✓	✓	✓		✓	✓	✓
T3				✓	✓	✓	✓		✓	✓	✓
T4		✓		✓			✓		✓	✓	
T5			✓								✓
T6			✓	✓	✓	✓	✓		✓	✓	✓
		<b>Unit 11</b>	<b>Unit 12</b>	<b>Unit 13</b>	<b>Unit 14</b>	<b>Unit 15</b>	<b>Unit 16</b>	<b>Unit 17</b>			
T1		✓					✓	✓			
T2		✓	✓		✓	✓	✓	✓			
T3				✓							
T4											
T5							✓	✓			
T6		✓	✓	✓	✓	✓	✓	✓			

- T1** Creativity and Innovation  
**T2** Communication and Collaboration  
**T3** Research and Information Fluency  
**T4** Critical Thinking, Problem Solving, and Decision Making  
**T5** Digital Citizenship  
**T6** Technology Operations and Concepts

- T1** Creativity and Innovation  
 Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students do the following:
- Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.
  - Use models and simulations to explore complex systems and issues.
  - Identify trends and forecast possibilities.
- T2** Communication and Collaboration  
 Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students do the following:
- Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

- c. Develop cultural understanding and global awareness by engaging with learners of other cultures.
- d. Contribute to project teams to produce original works or solve problems.

**T3** Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students do the following:

- a. Plan strategies to guide inquiry.
- b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. Process data and report results.

**T4** Critical Thinking, Problem Solving, and Decision Making

Students use critical-thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Students do the following:

- a. Identify and define authentic problems and significant questions for investigation.
- b. Plan and manage activities to develop a solution or complete a project.
- c. Collect and analyze data to identify solutions and/or make informed decisions.
- d. Use multiple processes and diverse perspectives to explore alternative solutions.

**T5** Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students do the following:

- a. Advocate and practice safe, legal, and responsible use of information and technology.
- b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- c. Demonstrate personal responsibility for lifelong learning.
- d. Exhibit leadership for digital citizenship.

**T6** Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students do the following:

- a. Understand and use technology systems.
- b. Select and use applications effectively and productively.
- c. Troubleshoot systems and applications.
- d. Transfer current knowledge to learning of new technologies.