Acknowledgments

The components of this instructional framework were developed by the following curriculum panelists:

Nancy Brandon, Colonial Forge High School, Stafford County Public Schools
Darrell Carpenter, Director, Center for Cyber Security, Longwood University
Walter Dula, Associate Manager/Associate Professor, Accenture Federal Services
Will Green, Chief Executive Officer, CecureData
Kenneth Johnson, Park View High School, Loudoun County Public Schools
Ann King, Landstown High School, Virginia Beach City Public Schools
Kimberly Radford, Blacksburg High School, Montgomery County Public Schools
Giles Ring, Cybersecurity Operations Manager, Virginia Credit Union
Dr. Lhe Smith, Supervisor, Loudoun County Public Schools
Correlations to the Virginia Standards of Learning were reviewed and updated by:

Leslie R. Bowers, English Teacher (ret.), Newport News Public Schools  
Vickie L. Inge, Mathematics Committee Member, Virginia Mathematics and Science Coalition  
Anne F. Markwith, New Teacher Mentor (Science), Gloucester County Public Schools  
Cathy Nichols-Cocke, PhD, Social Studies Teacher, Fairfax High School, Fairfax County Public Schools

The framework was edited and produced by the CTE Resource Center:

Leanne Forbes-Tipton, Writer/Editor  
Kevin P. Reilly, Administrative Coordinator

Sharon Acuff, Specialist, Marketing and Related Clusters  
Office of Career, Technical, and Adult Education  
Virginia Department of Education

Tricia S. Jacobs, PhD, CTE Coordinator of Curriculum and Instruction  
Office of Career, Technical, and Adult Education  
Virginia Department of Education

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Course Description

Suggested Grade Level: 10 or 11 or 12  
Prerequisites: 6302

Cybersecurity in Marketing focuses on cybersecurity fundamentals, threats and vulnerabilities, and data security and ethics. Students will be introduced to issues such as risk management, privacy assurance, and data analytics, while also exploring brand protection and marketing breaches. Career opportunities in the field of cybersecurity in marketing are also investigated.

Task Essentials Table

- Tasks/competencies designated by plus icons (+) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (○) are optional
- Tasks/competencies designated by minus icons (◇) are omitted
- Tasks marked with an asterisk (*) are sensitive.
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**Curriculum Framework**

**Exploring Cybersecurity Fundamentals**

**Task Number 39**

**Distinguish between data, information, and knowledge.**

**Definition**

Distinction should include defining the following terms:

- *Data* (i.e., structured or unstructured but uninterrupted)
- *Single-source data and big data* (i.e., from one source, massive data files)
- *Information* (i.e., structured)
- *Knowledge* (i.e., actionable information)
• Data at rest (i.e., storage)
• Data in transit (i.e., transmission)
• Data being processed (i.e., memory).

It should also include differentiating among each and providing examples of data, information, and knowledge.
For more information, see National Security Agency: Resources for Students.

Process/Skill Questions

• What is data?
• What is information?
• What is knowledge?

Task Number 40

Describe cybersecurity in marketing.

Definition

Description should state that cybersecurity is the protection of information and data, which includes information systems (e.g., networks, hardware, software), the human element, and physical elements, from risks associated with threats, attacks, hazards, or physical damage. It is important to consider information assurance, risks, and risk management.

Process/Skill Questions

• How would one define information systems?
• What are points of vulnerability within the marketing plan?
• How can digital marketing be secured?

Task Number 41

Examine legislative foundations that have shaped cybersecurity.

Definition

Examination should include major legislative acts considered to be the foundation of cybersecurity including but not limited to

• Counterfeit Access Device and Computer Fraud and Abuse Act of 1984
• Electronic Communications Privacy Act of 1986 (ECPA)
• Computer Security Act of 1987
• Paperwork Reduction Act of 1995
• Clinger-Cohen Act of 1996 Homeland Security Act (HSA) of 2002
• Cyber Security Research and Development Act of 2002
• E-Government Act of 2002
• Federal Information Security Management Act (FISMA) of 2002 clarified.

Process/Skill Questions

• How has cybersecurity influenced legislation?
• How will legislation influence marketing, given heightened cybersecurity concerns?

National MBA Research Standards-Business Administration

Acquire a foundational knowledge of information management to understand its nature and scope.

Acquire foundational knowledge of business laws and regulations to understand their nature and scope.

Acquire knowledge of the impact of government on business activities to make informed economic decisions.

Task Number 42

Define information assurance as it pertains to marketing.

Definition

Definition should state that information assurance is the process that involves

• protecting marketing information systems
• managing the risks to systems by protecting user data through measures of
  o confidentiality
  o integrity
  o availability
  o authenticity
  o nonrepudiation.

Process/Skill Questions

• What is the definition of marketing information?
Who is impacted by an organizational commitment to data integrity and assurance?
How does the assurance of information influence routine marketing practices?

National MBA Research Standards - Business Administration

Develop policies/procedures to protect workplace security.

Task Number 43

Define risk as it pertains to marketing.

Definition

Definition should state that risk is the likelihood that a vulnerability will occur and that a loss occurs when that vulnerability is exploited.

Provide examples of risks in the marketing world.

Process/Skill Questions

- How are marketing plans vulnerable to cybersecurity concerns?
- Who are marketing cyber stakeholders for an organization?
- What aspects of daily marketing plans are motivated by cybersecurity concerns?

National MBA Research Standards - Business Administration

Identify potential business threats and opportunities to protect a business' financial well-being.

Use risk management products to protect a business's financial well-being.

Task Number 44

Explain why organizations need to manage risk.

Definition

Explanation should include the following:

- Risks can cause loss if they are unmanaged.
Organizations are vulnerable to common and unique types of threats. Organizations must identify vulnerable areas, along with the potential for actual threats, so they can plan operations to reduce the effect of those threats. All threats cannot be completely eliminated; therefore, organizations must address responses to threats and plans for continuous business operations.

Process/Skill Questions

- What resource may be mitigated by using risk?
- How do organizations routinely audit risk exposure?
- What corrective measures may be taken to reduce marketing risk?

National MBAResearch Standards-Business Administration

Identify potential business threats and opportunities to protect a business' financial well-being.

Use risk management products to protect a business's financial well-being.

Task Number 45

Identify the concept of cybersecurity risk management.

Definition

Identification should include

- defining risk management as the process of identifying possible vulnerabilities and quantifying potential risk as it pertains to systems
- addressing risk-management strategies, including but not limited to
  - risk mitigation -- reducing the likelihood of the risk
  - risk transfer -- transferring the risk to another company, such as an insurance firm
  - risk avoidance -- avoiding the possibility of the risk (e.g., not using a specific software program would avoid any known risks of that program)
  - risk acceptance -- understanding and accepting the risks associated with use of a system or feature.

Process/Skill Questions

- What mechanisms are in place to manage cyber risk?
- How is risk assessment incorporating cyber issues?
- How does an organization create a cyber marketing security plan?
Acquire a foundational knowledge of information management to understand its nature and scope.

Identify potential business threats and opportunities to protect a business' financial well-being.

Use risk management products to protect a business's financial well-being.

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Task Number 46

Define data analytics and its influence on marketing/business from a security perspective.

Definition

Definition should include that data analytics is the pursuit of extracting meaning from raw data using specialized computer systems. These systems transform, organize, and model the data to draw conclusions and identify patterns.

Definition should also include:

- target audience
- capabilities of vs. appropriation of
- patterns
- trends
- predictions
- purpose
- influence on marketing.

Resource: Informatica

Process/Skill Questions

- What is analytics?
- What is data?
- What is marketing metrics?

National MBAResearch Standards-Business Administration
Acquire a foundational knowledge of information management to understand its nature and scope.

Understand economic systems to be able to recognize the environments in which businesses function.

Understand fundamental economic concepts to obtain a foundation for employment in business.

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**Task Number 47**

**Explain cybersecurity services provided to the organization or marketing as they relate to privacy issues and protecting systems against unauthorized access.**

**Definition**

Explanation should include the concepts that

- cybersecurity services provide the tools, methods, and procedures that an organization can use to protect their systems from unauthorized access to data, or the copying, transfer, or retrieval of data
- services can range from storing backups at remote sites, along with network monitoring of vulnerable software against intruders
- consequences can include loss of intellectual property, business/consumer data, and online fraud.

**Process/Skill Questions**

- How can intellectual property be compromised in marketing?
- How can business/consumer data be compromised in marketing?
- How can online fraud compromise marketing plans?

**National MBAResearch Standards—Business Administration**

Acquire foundational knowledge of business laws and regulations to understand their nature and scope.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Determine needed safety policies/procedures to protect employees.
Develop policies/procedures to protect workplace security.
Implement security policies/procedures to minimize chance for loss.

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**Task Number 48**

**Describe the marketing effect of cyberattacks on various organizations.**

**Definition**

Description should include the following concepts:

- Organizational leadership
- Organizational reputation management strategy
  - damage to reputation
  - loss of goodwill
  - financial effect resulting from loss of goodwill
  - supply chain management
- Recovery strategies (Continuity of Operations Plan [COOP])
  - public relations campaign
  - responses to cyberattacks
  - crises-response plans
  - communication plans
- Identification
  - ways to create successful passwords
  - a timetable to follow as a reminder to change passwords.


**Process/Skill Questions**

- What is goodwill as it applies to marketing?
- How would a cyberattack compromise affect marketing plans?
- How could a cyberattack compromise affect supply chains?

**National MBAResearch Standards-Business Administration**

Identify potential business threats and opportunities to protect a business' financial well-being.
Recognize management's role to understand its contribution to business success.

Understand economic systems to be able to recognize the environments in which businesses function.

Understand global trade's impact to aid business decision-making.

Understand supply chain management role to recognize its need in business.

National MBAResearch Standards-Marketing

Understand the use of public-relations activities to communicate with targeted audiences.

Understanding Cyber Threats and Vulnerabilities in Marketing

Task Number 49

Describe cybersecurity threats as they relate to marketing.

Definition

Description should include

- intellectual property
- business and consumer data
- ethical and legal implications
- loss of data
- international implications
- contracts, legal implications, service-level agreements.


Process/Skill Questions

- What is an example of a marketing cyber threat?
What vulnerabilities can occur in marketing businesses?
What are some marketing activities that are vulnerable to cyber threats?

National MBA Research Standards - Business Administration

Acquire a foundational knowledge of information management to understand its nature and scope.

Acquire information to guide business decision-making.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Create and access databases to acquire information for business decision-making.

Develop policies/procedures to protect workplace security.

Utilize information-technology tools to manage and perform work responsibilities.

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Task Number 50

Describe the difference between a cyber threat and a vulnerability in marketing.

Definition

Description should include defining

- **asset** (as it relates to a secure environment)
  - a person, structure, facility, information and records, information technology systems and resources, material, process, relationships, or reputation that has value
- **vulnerability**
  - a characteristic or specific weakness that renders an organization or asset (such as information or an information system) open to exploitation by a given threat or susceptible to a given hazard
- **exploit**
  - a technique to breach the security of a network or information system in violation of security policy
- **threat**
  - a circumstance or event that has or indicates the potential to exploit vulnerabilities and to adversely influence (create adverse consequences for) organizational
operations, organizational assets (including information and information systems), individuals, other organizations, or society

- **attack vector**
  - a path or route used by the adversary to gain access to the target (asset)

- **threat agents**
  - an individual, group, organization, or government that conducts or has the intent to conduct detrimental activities

- **safeguards**
  - a practice, procedure, or mechanism that reduces risk.


**Process/Skill Questions**

- How do cybersecurity threats affect marketing activities?
- How do cybersecurity threats affect marketing information?
- What steps could be taken to mitigate the influence of these marketing cyber threats?

**Task Number 51**

**Identify different types of threat agents.**

**Definition**

Identification should include, but not be limited to

- **script kiddies**
  - unskilled attackers who do not have the ability to discover new vulnerabilities or write exploit code and are dependent on the research and tools from others. Their goal is achievement. Their subgoals are to gain access and deface web pages.

- **hacktivists**
  - attackers with primary goals of bringing attention to a social or political cause or seeking vengeance for what they consider to be a political or societal wrongdoing;
skills of hacktivists can range from script kiddies to professional and/or sophisticated hackers.

- **malicious insiders**
  - a disgruntled organization insider is a principal source of computer crime. Insiders may not need a great deal of knowledge about computer intrusions because their knowledge of a target system often allows them to gain unrestricted access to cause damage to the system or to steal system data. The insider threat also includes outsourcing vendors as well as employees who accidentally introduce malware into systems.

- **criminal enterprises**
  - attackers target systems for monetary gain. Specifically, organized crime groups are using spam, phishing, and spyware/malware to commit identity theft and online fraud. International corporate spies and organized crime organizations also pose a threat to the United States through their ability to conduct industrial espionage and large-scale monetary theft and to hire or develop hacker talent.

- **competitors or rogue corporations**
  - an organization that engages in hacking against competitors with the intention of stealing intellectual property or gaining financial competitive advantages.

- **nation-state sponsored**
  - the goal is to weaken, disrupt, or destroy the United States. Their subgoals include espionage for attack purposes, espionage for technology advancement, disruption of infrastructure to attack the U.S. economy, full scale attack of the infrastructure when attacked by the United States to damage the ability of the United States to continue its attacks.
  - ideological militants.

Resource: Industrial Control System Cyber Emergency Response Team (ICS-CERT).

**Process/Skill Questions**

- What is a threat agent?
- What are different types of threat agents?
- How are these threat agents able to initiate an attack?

**National MBA Research Standards-Business Administration**

Acquire information to guide business decision-making.

Implement security policies/procedures to minimize chance for loss.

Utilize information-technology tools to manage and perform work responsibilities.

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**Task Number 52**
Describe types of cyber threats.

**Definition**

Description should include, but not be limited to

- steganography (e.g., embedded virus/Trojan/malware in pictures)
- attacks on authentication (e.g., password, biometrics, terrorism)
- acts of terrorism and how they present a threat
- pandemics and how they present a threat
- phishing scams
- hacking, spamming, malvertising
  - marketing campaign hijacking
  - web vs. applications
- cross-site scripting attack (XSS)
- local file inclusions (LFI)
- SQL injection (SQLi)
- phishing attacks, spear phishing, and whaling
- denial of service (DoS)
- distributed denial of service – (DDos), bonnets, and smurf attacks
- malware (e.g., virus, worm, botnet, ransomware)
- infrastructure
- competitor-sponsored hacking
- nation-state sponsored hacking
- dark web.

**Process/Skill Questions**

- What are different types of cyber threats?
- How does each type work?
- How can these cyber threats be prevented?

**National MBA Research Standards-Business Administration**

**Acquire information to guide business decision-making.**

**Implement security policies/procedures to minimize chance for loss.**

**Utilize information-technology tools to manage and perform work responsibilities.**

**Task Number 53**
Identify marketing attack vectors.

Definition

Identification should include, but not be limited to, the following:

- **Vectors**
  - social media
  - email campaign
  - steganography
  - digital billboards
  - web-based advertising
  - mobile devices
  - unsecured wireless hotspots
- Marketing strategies based on perishable inventory (e.g., boarding passes, tickets to sports events)

Process/Skill Questions

- What is an attack vector?
- What are some examples of marketing vectors?
- How can these vectors be protected against cyberattacks?

National MBAResearch Standards-Business Administration

Acquire information to guide business decision-making.

Implement security policies/procedures to minimize chance for loss.

Utilize information-technology tools to manage and perform work responsibilities.

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Examining Data Security and Ethics in Marketing Cybersecurity

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Task Number 54

Differentiate between marketing ethics and laws.
Definition

Differentiation should include the following:

- Understanding that ethics are the principles and standards that define acceptable marketing conduct as determined by various stakeholders (e.g., privacy issues and/or policies).
- Understanding that laws are society’s expectation of conduct of what is right and wrong (e.g., online fraud).
- Examining the rights and protections for owners of intellectual property (e.g., intellectual property theft).

Resources:
NCSL: Ethics
Social Responsibility and Ethics in Marketing
Ethical Issues in Marketing

Process/Skill Questions

- What are the privacy issues/policies marketers must consider?
- What are the standards by which marketers must abide?
- What does being socially responsible mean?
- What are examples of poor marketing ethical decisions?
- What laws have been enacted to protect consumers in Virginia?

National MBAResearch Standards-Business Administration

Acquire foundational knowledge of business laws and regulations to understand their nature and scope.

Apply ethics to demonstrate trustworthiness.

Recognize management's role to understand its contribution to business success.

Understand operation's role and function in business to value its contribution to a company.

Understand the nature of business to show its contributions to society.

Utilize information-technology tools to manage and perform work responsibilities.

National MBAResearch Standards-Marketing

Acquire foundational knowledge of marketing-information management to understand its nature and scope.
Task Number 55

Describe branding and its importance for cybersecurity in marketing.

Definition

Description should include

- defining the term *branding*
- explaining the role branding plays in a business’s marketing strategy
- listing types of brands (e.g., national, private distributor, and generic)
- advancing and adding value to one’s own brand through the practice of aligning with trusted or similar brands.

Process/Skill Questions

- Why is it important for a company to define its brand identity?
- How can a business differentiate itself via branding?
- How do consumers view dealing with national brands vs. private or generic brands?
- What protections can companies employ for their brands?
- How can brands protect their consumer data?

National MBAResearch Standards-Business Administration

Reinforce company's image to exhibit the company's brand promise.

National MBAResearch Standards-Marketing

Position company to acquire desired business image.

Position products/services to acquire desired business image.

Task Number 56

Identify the importance of building a brand.
Definition

Identification of the role a brand plays in an organization, including

- building product recognition
- creating customer loyalty
- guiding business decisions
- establishing an image
- offering a standard of quality and consistency
- differentiating products from their competitors
- capitalizing on brand exposure
- adding value to the product
- applying branding across digital platforms
- applying rebranding.

Process/Skill Questions

- What facets of branding are important in consumer decision-making?
- How do consumers decide to be brand loyal?
- What tenets of a brand add value without sacrificing ethics?
- What platforms can businesses use to build their brand?

National MBA Research Standards-Business Administration

Reinforce company's image to exhibit the company's brand promise.

National MBA Research Standards-Marketing

Position company to acquire desired business image.

Position products/services to acquire desired business image.

Task Number 57

Describe brand protection against malicious threat actors.

Definition

Description should include ways in which

- threat actors infringe on your brand (copyrights, trademarks)
  - phishing campaigns
fake websites (domain or typo squatting)
  • an organization can protect against brand infringement
  o brand protection services.

See also 9 Nasty Trademark Infringement Cases and How to Avoid Them.

Process/Skill Questions

• How can a brand be infringed upon?
• What are examples of infringement campaigns?
• How can a business protect itself from brand infringement?

National MBAResearch Standards-Business Administration

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement safety procedures to minimize loss.

Implement security policies/procedures to minimize chance for loss.

Reinforce company's image to exhibit the company's brand promise.

National MBAResearch Standards-Marketing

Position company to acquire desired business image.

Position products/services to acquire desired business image.

Task Number 58

Describe the importance of the registration and protection of domain names.

Definition

Description should include

• defining the term domain name
• explaining the importance of registering and protecting domain names
• summarizing strategies for registering and protecting domain names, including the
Process/Skill Questions

- Why is it important to determine a memorable domain name?
- What are the differences between .com, .biz, .net, and .org?
- How can a business successfully register a domain name?
- What tools are available to a business to protect its domain name?

National MBAResearch Standards-Business Administration

Acquire foundational knowledge of business laws and regulations to understand their nature and scope.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

Understanding Marketing Data

Task Number 59

Explain the concept of personally identifiable information.

Definition

Explanation should include defining the following:

- **Personally identifiable information (PII)** -- any information about an individual, directly or indirectly, that suggests the identity of an individual (directly: name, address, Social Security number; indirectly: gender, race, birth date).
- **Personal financial information (PFI)** -- any financial information a financial company shares with affiliates (part of a customer’s financial group) or non-affiliates (outside of financial group).
• **Non-public information (NPI)** – any PFI that a financial institution collects when providing a service to a customer. This does not include information that is accessible to the public.

• **Personal health information (PHI)** – any information about a person's medical history collected by medical professionals (tests, lab results, insurance information, etc.).

• **Digital footprint** -- data collected about a person based upon ones online activity. Data can include, but is not limited to
  - Internet protocol address
  - tweets
  - Facebook posts
  - browsers
  - websites visited

• **Digital traces** -- defined by content (the message) and metadata (the context of the message).

Explanation also should include examples of digital footprints that occur in everyday life and analyzing digital footprint examples to interpret information about individuals.

Resource: U.S. Department of Labor Guidance on the Protection of Personal Identifiable Information
U.S. Federal Trade Commission, Privacy Choice for Your Personal Financial Information
U.S. Federal Trade Commission How To Comply with the Privacy of Consumer Financial Information Rule of the Gramm-Leach-Bliley Act
U.S. Department of Health & Human Services, What is PHI?
Child Data Citizen: Key Concepts
National Integrated Cyber Education Research Center’s Cyber Business Module: You are the Data

**Process/Skill Questions**

• How can a digital footprint affect a person receiving a security clearance?
• How can personal-health information be affected if there is a cybersecurity breach?

**National MBAResearch Standards-Business Administration**

Acquire foundational knowledge of business laws and regulations to understand their nature and scope.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

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**Task Number 60**
Explain how and why personal data is valuable to both an individual and to the organizations that collect it, analyze it, and make decisions based on it.

Definition

Explanation should include

- defining *big data* and *data mining* (the process or techniques used to analyze large sets of existing information to discover previously unrevealed patterns or correlations)
- identifying where and how big data are stored and by whom
- identifying how big data are used
- explaining useful data that identifies and tracks individuals
- predicting how organizations customize communication with their target market based on an individual’s digital footprint.

Resource: National Integrated Cyber Education Research Center’s [Cyber Business Module: You are the Data](#)

Process/Skill Questions

- What is the difference between big data and data mining?
- Why is the storage of big data important and critical in a world of cybersecurity threats?
- What would happen if someone who held a top security clearance for the military went jogging wearing a Fitbit? How could the security clearances of many individuals be affected?

National MBAResearch Standards-Business Administration

Acquire foundational knowledge of business laws and regulations to understand their nature and scope.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

Task Number 61

Identify the most common ways marketing data is collected in the United States.
Definition

Identification should include

- defining the term *data collection* as the process of gathering pieces of information (active vs. passive, informed consent vs. no consent)
- describing the types of sources where data can be collected
- describing the marketing decision support system (MDSS)
- defining how data collection is governed on the local, state, national, and international level.

Process/Skill Questions

- How do social media ads collect your information?
- What happens when a person talks on a cellphone with another person and bits and pieces of the conversation shows up in the search browser on a cellphone?
- How are data collection governed between local, state, national, and international level?

National MBAResearch Standards-Business Administration

Acquire information to guide business decision-making.

National MBAResearch Standards-Marketing

Acquire foundational knowledge of marketing-information management to understand its nature and scope.

Understand data-collection methods to evaluate their appropriateness for the research problem/issue.

Task Number 62

Identify best practices for personal cyber hygiene.

Definition

Identification should include

- using techniques to protect personal data (e.g., encryption, passwords, preferences on devices, location)
- distinguishing between acceptable and unacceptable data to share (e.g., social media, apps)
• comparing the risks and benefits of sharing data
• understanding privacy policies before installing and/or using applications.

Resource: National Integrated Cyber Education Research Center’s Cyber Business Module: You are the Data.

Process/Skill Questions

• What are the benefits of using multifactor authentication vs. single-factor authentication?
• What are the risks and benefits of sharing data?
• Why is it imperative to read through the entire privacy policy before agreeing or accepting the terms of use?

National MBA Research Standards-Business Administration

Acquire information to guide business decision-making.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

Task Number 63

Identify the most common ways marketing data is used.

Definition

Identification should include how to extract specific information from stored data.

Identification also should include examples such as data filtering, data queries (including SQL), data mining, and data analytics.

Process/Skill Questions

• What are ways in which marketing data are collected?
• What are ways in which marketing data are used?
• What is the difference between data filtering, data queries, data mining, and data analytics?

National MBA Research Standards-Business Administration

Acquire information to guide business decision-making.
Apply data mining methods to acquire pertinent information for business decision-making.

Create and access databases to acquire information for business decision-making.

National MBAResearch Standards - Marketing

Acquire foundational knowledge of marketing-information management to understand its nature and scope.

Task Number 64

Identify ubiquitous computing.

Definition

Identification should include, but not be limited to

- Internet of Things (IoT)
- unmanned systems
- artificial intelligence.

Process/Skill Questions

- How does the IoT affect cybersecurity threats?
- What are unmanned systems?
- What is artificial intelligence?

National MBAResearch Standards - Business Administration

Acquire information to guide business decision-making.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

Task Number 65
Discuss security and privacy implications of ubiquitous computing.

Definition

Discussion should include examples of security and privacy issues in ubiquitous computing, such as IoT in smart homes.

Process/Skill Questions

- What is the difference between security and privacy?
- How does the security and privacy influence smart homes vs. non-smart homes?
- What would happen if smart homes were compromised with security breaches?

National MBAResearch Standards-Business Administration

Acquire information to guide business decision-making.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

Creating a Cyber Incident Response Form

Task Number 66

Test the cyber incident response form for accuracy and relevance to a response.

Definition

Testing should include

- ensuring the correct tools are used
- confirming the affected people are involved
- guaranteeing the order of the response is correct.
Process/Skill Questions

- What is an incident response form?
- What is the purpose of an incident response form?
- What information should be contained in the incident response form?

National MBAResearch Standards-Business Administration

Apply verbal skills to obtain and convey information.

Communicate with staff to clarify workplace objectives.

Implement safety procedures to minimize loss.

Read to acquire meaning from written material and to apply the information to a task.

Record information to maintain and present a report of business activity.

Utilize planning tools to guide organization's/department's activities.

National Standards for Business Administration and Marketing

Business Administration Core Standards

Strategic Management

Understands tools, techniques, and systems that affect a business’s ability to plan, control, and organize an organization/department

- Utilize planning tools to guide organization’s/department’s activities.

Task Number 67

Describe how a principal unit works with the appropriate response teams throughout the response event.

Definition

Description should include

- dashboard system
- centralized communication.
Process/Skill Questions

- What is the purpose of having a principal unit?
- What are the responsibilities of a principal unit?
- What are some necessary features of the software tools used by the principal unit?

National MBAResearch Standards-Business Administration

Communicate with staff to clarify workplace objectives.

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Implement security policies/procedures to minimize chance for loss.

Implement teamwork techniques to accomplish goals.

Manage internal and external business relationships to foster positive interactions.

Record information to maintain and present a report of business activity.

Write internal and external business correspondence to convey and obtain information effectively.

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Rebuilding Public Trust After a Marketing Breach

Task Number 68

Respond to breaches honestly.

Definition

Response should include

- acknowledging the breach immediately (remEDIATE with stakeholders first)
- identifying the breach and explain how it occurred
- identifying the remedy.
Process/Skill Questions

- Why is it important for companies to be honest from the start when a breach occurs?
- How does a company decide whom to notify of a breach?
- How does a company decide what the potential damage could be if information is misused?

National MBAResearch Standards-Business Administration

Comply with security rules, regulations, and codes (e.g., property, privacy, access, confidentiality) to protect customer and company information, reputation, and image.

Develop policies/procedures to protect workplace security.

Implement safety procedures to minimize loss.

Implement security policies/procedures to minimize chance for loss.

Record information to maintain and present a report of business activity.

Reinforce company's image to exhibit the company's brand promise.

Resolve conflicts with/for customers to encourage repeat business.

Use communication skills to foster open, honest communications.

Use social media to communicate with a business's stakeholders.

Task Number 69

Act quickly to remedy a solution to the breach.

Definition

Acting quickly should include

- sharing information before the public begins asking questions
- providing solutions immediately
- providing frequent updates to the public.

Process/Skill Questions

- What are some ways that companies have informed the public of a breach?
• Why is it important to inform the public of a breach in a timely manner?
• How should a company continue to inform the public after the initial breach announcement is made?
• How can a company avoid additional data loss?

National MBA Research Standards-Business Administration

Implement teamwork techniques to accomplish goals.

Record information to maintain and present a report of business activity.

Reinforce company's image to exhibit the company's brand promise.

Resolve conflicts with/for customers to encourage repeat business.

Use social media to communicate with a business's stakeholders.

Write internal and external business correspondence to convey and obtain information effectively.

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Exploring Marketing Cybersecurity Careers

Task Number 70

Research career opportunities for cybersecurity professionals.

Definition

Research should include using online job research and job posting sites to locate entry-level cybersecurity and cyber forensics opportunities at the local, state, national, and international levels.

• Virginia Employment Commission
• CyberSeek
• O*Net OnLine
• Virginia Education Wizard
• USAJobs.gov
• Scholarship for Service.
Resource: Virginia Space Grant Consortium’s free video series, Breaking the Code on a Career in Cybersecurity, which features interviews with cyber professionals about their career pathways.

Process/Skill Questions

• What career opportunities are available in cybersecurity?
• What hard and soft skills, aptitudes, and interests are necessary for employment as a cybersecurity professional?
• What websites are available to research cybersecurity careers?
• What are the current employment trends in cybersecurity?
• What are the tasks performed by cybersecurity professionals?
• What are they responsible for?
• What online sources are available to assist an individual in determining whether a career in cybersecurity is a good match?

National MBAResearch Standards-Business Administration

Utilize critical-thinking skills to determine best options/outcomes.

National MBAResearch Standards-Marketing

Participate in career planning to enhance job-success potential.

National Standards for Business Administration and Marketing

Business Administration Core Standards

Professional Development
Understands concepts, tools, and strategies used to explore, obtain, and develop in a business career

• Utilize career-advancement activities to enhance professional development.

Task Number 71

Explore the cybersecurity careers in marketing affected by current and emerging technology.
Definition

Exploration should include, but not be limited to, the following:

- Security programmers
- Enterprise architects (Acquisitions)
- Marketing copywriter specialist
- Internet marketing specialist
- Cyber security awareness and outreach manager
- Product line manager, cybersecurity
- Senior product marketing manager

Process/Skill Questions

- What current technology is used in cybersecurity careers?
- What are the emerging technological trends in cybersecurity careers?
- What skills in data science and analytics will be necessary for cybersecurity professionals?
- How will digital ecosystems drive the next generation of cybersecurity professionals?
- How will artificial intelligence (AI), intelligent apps, and machine learning affect cybersecurity careers?
- How will robots, drones, and autonomous vehicles affect cybersecurity careers?

National MBAResearch Standards-Business Administration

Utilize critical-thinking skills to determine best options/outcomes.

National Standards for Business Administration and Marketing

Business Administration Core Standards
Professional Development
Understands concepts, tools, and strategies used to explore, obtain, and develop in a business career

- Participate in career-planning to enhance job-success potential.

Task Number 72

Identify the educational pathways for emerging cybersecurity professionals in marketing.
Definition

Identification should include

- online resources that specialize in providing this type of information (e.g., O*Net OnLine, Bureau of Labor Statistics' Occupational Outlook Handbook, Virginia Education Wizard, CyberSeek)
- common pathways based on industry requirements (i.e., internships), community college, or four-year university)
- academic goals (e.g., strong mathematics skills)
- career and technical education goals (i.e., industry certifications and licensure)
- postsecondary options (i.e., internships, community colleges, technical institutes, or four-year universities)
- National Centers for Academic Excellence (CAEs) in cybersecurity
- National Initiative for Cybersecurity Careers and Studies (NICCS)
- Virginia Cybersecurity Partnership: Career Guide
- Free online resources
  - Cybrary
  - edX
  - Cyberdegrees
  - SANS Cyber Aces

Process/Skill Questions

- What level of education is required for careers in cybersecurity?
- What degrees are required to work in cybersecurity?
- What schools offer majors in cybersecurity?
- What internship and externship opportunities are available for individuals seeking employment in cybersecurity?
- What industry certifications are required for employment in cybersecurity?

National MBAResearch Standards-Business Administration

Utilize critical-thinking skills to determine best options/outcomes.

National Standards for Business Administration and Marketing

Business Administration Core Standards

Professional Development

Understands concepts, tools, and strategies used to explore, obtain, and develop in a business career

- Implement job-seeking skills to obtain employment.
Participate in career-planning to enhance job-success potential.

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**Task Number 73**

**Identify career paths and job titles within the cybersecurity/cyber forensics industry and career clusters.**

**Definition**

Identification should include:

- related Career Clusters (e.g., Government & Public Administration; Information Technology; Law, Public Safety, Corrections & Security; Science, Technology, Engineering & Mathematics, Marketing)
- career pathways related to selected Career Clusters (for examples, see CyberSeek)
- job titles related to selected pathways (e.g., cybercrime analyst, cybersecurity manager, cybersecurity engineer, information security analyst, network administrator, cybersecurity researcher, information assurance analysts, information assurance engineer, incident responders, security administrators, security architects, security engineers, intelligence analysts, tactical analysts, security analysts, security software developers).

**Process/Skill Questions**

- What Career Clusters do cybersecurity careers fall under?
- What career pathways can an individual working in cybersecurity expect to follow?
- What are the salary ranges for careers in cybersecurity?
- What industries are hiring cybersecurity professionals?

**National MBA Research Standards-Business Administration**

Utilize critical-thinking skills to determine best options/outcomes.

**National Standards for Business Administration and Marketing**

**Business Administration Core Standards**

**Professional Development**

Understands concepts, tools, and strategies used to explore, obtain, and develop in a business career.
• Participate in career-planning to enhance job-success potential.

Task Number 74

Describe the basic strategies for seeking employment.

Definition

Description should include

• seeking a mentor
• networking
• participating in a work-based learning experience
• joining a business association
• obtaining industry certification in a chosen area
• investing in personal branding
  o creating a personal web page
  o creating a professional online profile (e.g., on LinkedIn, Facebook)
  o monitoring personal digital presence, including social media sites (e.g., students should Google themselves and understand that employers and postsecondary institutions will do the same)
• identifying available jobs
• using job-search engines
• matching personal qualifications with available jobs
• gathering information about prospective employers from websites and other data sources
• tailoring a cover letter to match a desired position
• determining whether a traditional or electronic résumé is most appropriate for matching a desired position
• determining when to use email and when to use traditional written correspondence
• deciding when to post a résumé online, weighing the risks involved in online postings, submitting an application, résumé, and references, as applicable
• preparing for an interview.

Process/Skill Questions

• How does one establish a professional network? Why is networking important?
• How would a job-seeker benefit from mentorship? How does membership in professional associations benefit a job-seeker? What professional associations exist for cybersecurity professionals?
• Where can leads for employment in cybersecurity be found?
• Why is it important to conduct research on prospective employers?
• What are the benefits to a job-seeker of having an online presence (i.e., LinkedIn)?
• What are some drawbacks of having an online presence?
• Why should a job-seeker prepare a cover letter and a résumé? What format should be used?
• What is the most effective way to communicate with a perspective employer? How should a job-seeker prepare for a professional interview (face-to-face, phone, Skype, panel, situational, performance)?

National MBAResearch Standards-Business Administration

Implement job-seeking skills to obtain employment.

National Standards for Business Administration and Marketing

Business Administration Core Standards

Professional Development

Understands concepts, tools, and strategies used to explore, obtain, and develop in a business career

• Participate in career-planning to enhance job-success potential.

Task Number 75

Describe essential elements of a traditional and an electronic résumé.

Definition

Description should incorporate the concept that both résumé types should include information that is

• complete
• accurate
• effectively organized.

Description should also include the concept that the electronic résumé should include

• attention to security concerns
• keywords
• use of scanner-friendly format
• consideration of file type.
Process/Skill Questions

- What type of résumé is most effective (traditional vs. electronic)?
- What are the keywords used in electronic résumés that enhance hits?
- What are the benefits and risks of posting a résumé online?
- What formatting issues should be addressed when developing an electronic résumé?
- What security issues exist when an individual posts an electronic résumé? How does one protect personal information?

National MBAResearch Standards-Business Administration

Implement job-seeking skills to obtain employment.

Utilize critical-thinking skills to determine best options/outcomes.

Task Number 76

Prepare a career portfolio.

Definition

Preparation should include

- creating and/or gathering a résumé and a variety of electronic and non-electronic documents that contain representatives of the student’s qualifications, such as
  - a personal statement
  - short-term and long-term goals
  - work samples
  - letters of recommendation
  - skills and abilities sheets.

Documents that reflect the student’s knowledge, skills, and abilities should be included.

Process/Skill Questions

- What is a career portfolio?
- What items should be included in a career portfolio?
- What are the benefits of preparing a career portfolio?
- How can a career portfolio be utilized in the employment seeking process?
- Should a career portfolio be showcased in a traditional or digital format?

National MBAResearch Standards-Business Administration
Utilize critical-thinking skills to determine best options/outcomes.

**National Standards for Business Administration and Marketing**

**Business Administration Core Standards**

**Professional Development**

Understands concepts, tools, and strategies used to explore, obtain, and develop in a business career

- Participate in career-planning to enhance job-success potential.

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**Task Number 77**

**Identify options for professional development in the field of digital and social media marketing.**

**Definition**

Identification should include options such as

- education (traditional and online)
- training (traditional and online)
- work-based learning (e.g., job shadowing, mentorship)
- co-curricular student organization activities (e.g., DECA)
- certification
- professional associations
- vendor materials and training
- professional/trade shows
- professional publications.

**Process/Skill Questions**

- What professional associations exist for cybersecurity professionals?
- What are the benefits of membership?
- What types of training are available for cybersecurity professionals?
- What traditional and online educational opportunities are there for employees in cybersecurity? Are there job-shadowing opportunities for aspiring cybersecurity professionals?
- What industry certifications are required in cybersecurity?
- What trade publications are highly regarded by professionals in cybersecurity?
• How can an individual demonstrate that he/she is willing to learn and grow in his/her career?
• Why is it important to maintain a portfolio that details the progression of professional development?

**National MBAResearch Standards-Business Administration**

Utilize career-advancement activities to enhance professional development.

Utilize critical-thinking skills to determine best options/outcomes.

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**SOL Correlation by Task**

<table>
<thead>
<tr>
<th>Task</th>
<th>English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5</th>
<th>History and Social Science: WG.1, WHI.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguish between data, information, and knowledge.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe cybersecurity in marketing.</td>
<td>English: 10.5, 11.5, 12.5</td>
<td></td>
</tr>
<tr>
<td>Examine legislative foundations that have shaped cybersecurity.</td>
<td>English: 10.5, 10.8, 11.5, 11.8, 12.5, 12.8</td>
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<tr>
<td>Define information assurance as it pertains to marketing.</td>
<td>English: 10.3, 11.3, 12.3</td>
<td></td>
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<tr>
<td>Define risk as it pertains to marketing.</td>
<td>English: 10.3, 11.3, 12.3</td>
<td></td>
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<tr>
<td>Explain why organizations need to manage risk.</td>
<td>English: 10.5, 11.5, 12.5</td>
<td></td>
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<tr>
<td>Identify the concept of cybersecurity risk management.</td>
<td>English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5</td>
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</tr>
<tr>
<td>Define data analytics and its influence on marketing/business from a security perspective.</td>
<td>English: 10.3, 10.5, 10.8, 11.3, 11.5, 11.8, 12.3, 12.5, 12.8</td>
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<tr>
<td>Explain cybersecurity services provided to the organization or marketing as they relate to privacy issues and protecting systems against unauthorized access.</td>
<td>English: 10.5, 11.5, 12.5</td>
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<td>Describe the marketing effect of cyberattacks on various organizations.</td>
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<td>Describe cybersecurity threats as they relate to marketing.</td>
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<tr>
<td>Describe the difference between a cyber threat and a vulnerability in marketing.</td>
<td>English: 10.3, 10.5, 10.8, 11.3, 11.5, 11.8, 12.3, 12.5, 12.8</td>
<td></td>
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<td>Task</td>
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<td>---------------------------------------------------------------------</td>
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<tr>
<td>Identify different types of threat agents.</td>
<td>10.5, 10.8, 11.5, 11.8, 12.5, 12.8</td>
<td>GOVT.1, GOVT.6, GOVT.8, GOVT.9</td>
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<tr>
<td>Describe types of cyber threats.</td>
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<td>VUS.14</td>
</tr>
<tr>
<td>Identify marketing attack vectors.</td>
<td>10.5, 11.5, 12.5</td>
<td>GOVT.1, GOVT.6, GOVT.9, VUS.13, VUS.14, WG.1</td>
</tr>
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<td>Differentiate between marketing ethics and laws.</td>
<td>10.5, 10.8, 11.5, 11.8, 12.5, 12.8</td>
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<tr>
<td>Describe branding and its importance for cybersecurity in marketing.</td>
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<td>Identify the importance of building a brand.</td>
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<td>Describe the importance of the registration and protection of domain names.</td>
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<td>Explain the concept of personally identifiable information.</td>
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</tr>
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</tr>
<tr>
<td>Prepare a career portfolio.</td>
<td>English: 10.1, 10.6, 10.7, 11.1, 11.6, 11.7, 12.1, 12.6, 12.7</td>
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<tr>
<td>Identify options for professional development in the field of digital and social media marketing.</td>
<td>English: 10.5</td>
<td></td>
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</table>

## DECA Inc. Information

DECA, the co-curricular student organization for Marketing, provides many opportunities through its program of work for students to apply the knowledge, skills, and processes learned in a variety of courses. The purposes of DECA's program of competitive events are as follows:

- To contribute to the development of skills necessary for careers in marketing, merchandising, management, and entrepreneurship
- To evaluate student achievement of the skills through careful measurement devices (performance indicators)
- To provide opportunities for student and team recognition
- To provide constructive avenues for individual or team expression, initiative, and creativity
- To motivate students to assume responsibility for self-improvement and self-discipline
- To provide a vehicle for students to demonstrate (via performance indicators) their acquired skills through individual or team activities
- To assist students in acquiring a realistic self-concept through individual and team activities
- To help students participate in an environment of cooperation and competition
- To provide visibility for the educational goals and objectives of marketing education.

For additional information about the student organization, contact DECA Inc., 1908 Association Drive, Reston, VA 20191, phone (703) 860-5000, FAX (703) 860-4013. See the DECA Inc.

**Common Skills Developed When Participating in DECA Events**

- Communication skills—The ability to exchange information and ideas with others through writing, speaking, reading, or listening
- Analytical skills—The ability to derive facts from data, findings from facts, conclusions from findings, and recommendations from conclusions
- Critical thinking and problem-solving skills
- Production skills—The ability to take a concept from an idea and make it real
- Teamwork—The ability to plan, organize, and conduct a group project
- Priorities/time management—The ability to determine priorities and manage time commitments
- Assessment skills—The ability to evaluate presentations

**Related DECA Inc. Competitive Events**

CTE student organization information correlates to course content. These DECA, Inc. competitive events available in Virginia enable students to apply and practice tasks they have mastered within the course. Other events may be applicable upon instructor discretion. Refer to the [Chapter Management Guide](http://www.deca.org) for more information.

**Teacher Resource**

[AFACyberPatriot](http://www.deca.org) is the National Youth Cyber Education Program created by the Air Force Association to inspire K-12 students toward careers in cybersecurity or other science, technology, engineering, and mathematics (STEM) disciplines critical to our nation's future. At the core of the program is the National Youth Cyber Defense Competition, the nation's largest cyber defense competition that puts high school and middle school students in charge of securing virtual networks.
Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- College and Work Readiness Assessment (CWRA+)
- IC3 Digital Literacy Certification Examination
- IT Fundamentals+ Certification Examination
- National Career Readiness Certificate Assessment
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.

- Cybersecurity Fundamentals (6302/36 weeks)
- Cybersecurity in Marketing, Advanced (8127/36 weeks)

<table>
<thead>
<tr>
<th>Career Cluster: Arts, Audio/Video Technology and Communications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pathway</strong></td>
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</tbody>
</table>
| Performing Arts | Cinematographer  
|                 | Costume Designer  
|                 | Lighting Designer  
|                 | Technical Director  
|                 | Video, Film Editor |
| Visual Arts | Commercial Photographer  
|              | Fashion Designer  
|              | Fashion Illustrator  
|              | Graphic Designer  
|              | Illustrator  
|              | Media Planner, Buyer  
|              | Textile Designer |

<table>
<thead>
<tr>
<th>Career Cluster: Hospitality and Tourism</th>
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</thead>
<tbody>
<tr>
<td><strong>Pathway</strong></td>
</tr>
</tbody>
</table>
| Lodging | Bookkeeping, Accounting, or Auditing Clerk  
|          | Building Custodian  
|          | Caterer  
|          | Chief Engineer  
|          | Concierge  
|          | Environmental Specialist |
### Career Cluster: Hospitality and Tourism

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<thead>
<tr>
<th>Pathway</th>
<th>Occupations</th>
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<tbody>
<tr>
<td></td>
<td>Executive Housekeeper</td>
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<td>Front Desk Clerk</td>
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<td>Front Office Manager</td>
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<td>Lodging Manager</td>
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<td>Maintenance Supervisor</td>
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<td>Marketing Manager</td>
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<td>Reservationist</td>
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<td>Recreation, Amusements and Attractions</td>
<td>Advertising and Promotions Manager</td>
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<td>Camp Counselor</td>
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<td></td>
<td>Caterer</td>
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<td>Meeting and Convention Planner</td>
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<td></td>
<td>Recreation Supervisor</td>
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<td>Recreation Worker</td>
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<td>Retail Manager</td>
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<td>Sports Promoter</td>
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<tr>
<td>Restaurants and Food and Beverage Services</td>
<td>Caterer</td>
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<td></td>
<td>Cook</td>
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<td>Destination Manager</td>
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<td>Entrepreneur</td>
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<td>Executive Chef</td>
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<td>Facilities Manager</td>
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<td>Food Service Manager</td>
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<td>Franchisee</td>
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<td>Host, Hostess</td>
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<td>Meeting and Convention Planner</td>
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<td>Travel and Tourism</td>
<td>Director of Convention and Visitors Bureau</td>
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<td>Director of Tourism Development</td>
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<td>Human Resources Manager</td>
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<td>Meeting and Convention Planner</td>
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<td>Tour, Travel Guide</td>
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<td>Travel Agent</td>
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### Career Cluster: Marketing

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<thead>
<tr>
<th>Pathway</th>
<th>Occupations</th>
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<tbody>
<tr>
<td>Marketing Communications</td>
<td>Advertising Account Executive</td>
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<tr>
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<td>Advertising and Promotions Manager</td>
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<td>Art Director</td>
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<td>Copy Writer</td>
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<td>International Merchandising Manager</td>
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<td>Marketing Communication Manager</td>
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<td>Marketing Manager</td>
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<td>Media Planner, Buyer</td>
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<td>Multimedia Artist, Animator</td>
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<td>Public Information Director</td>
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<td>Public Relations Manager</td>
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<td>Sales Manager</td>
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<td>Trade Show Manager</td>
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## Career Cluster: Marketing

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<tr>
<th>Pathway</th>
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<td>Marketing Research</td>
<td>Brand Manager</td>
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<td>Professional Sales</td>
<td>Account Executive</td>
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