

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *Accounting* Standards

I. Accounting Cycle: Complete and explain the purpose of the various steps of accounting cycle.

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

II. Accounting Process: Apply generally accepted accounting principles to determine the value of assets, liabilities, and owner's equity.

A. Assets

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 D Assess the use of several units of measurement to the same problem.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

B. Liabilities

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 D Assess the use of several units of measurement to the same problem.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.

3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

C. Owner's Equity

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

III. Financial Statements: Prepare, interpret and analyze financial statements using manual and computerized systems for service, merchandising and manufacturing businesses.

A. Financial Statement Preparation and Analysis

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
- Evaluate technological processes by collecting data and applying mathematical models.
 - Apply knowledge of complex physical models to interpret data and apply mathematical models.
- 3.2.12 C Apply the elements of scientific inquiry to solve multi-step problems.

- 3.1.12 D Analyze scale as a way of relating concepts and ideas to one another by some measure.
- Assess the use of several units of measurement to the same problem.
 - Analyze and apply appropriate measurement scales when collecting data.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message.
 - Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Design and apply advanced multimedia techniques.
 - Analyze the legal responsibilities of computer users.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- Evaluate technological developments that have changed the way humans do work and discuss their impacts.
 - Evaluate socially proposed limitations of scientific research and technological application.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

B. Income Statements for the Three Types of Business Operations

- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
- Evaluate technological processes by collecting data and applying mathematical models.
 - Apply knowledge of complex physical models to interpret data and apply mathematical models.

- 3.1.12 D Analyze scale as a way of relating concepts and ideas to one another by some measure.
- Assess the use of several units of measurement to the same problem.
 - Analyze and apply appropriate measurement scales when collecting data.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 C Compare resource options in solving a specific manufacturing problem.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

IV. Special Applications: Apply appropriate accounting principals to payroll, income taxation, managerial systems, and various forms of ownership.

A. Forms of Ownership

- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

B. Payroll

- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

C. Income Taxation

- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.

- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

D. Managerial Accounting Principles and Systems

- 3.6.12 C Compare resource options in solving a specific manufacturing problem.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

V. Interpretation and Use of Data: Use planning and control principles to evaluate the performance of an organization and apply differential analysis and present-value concepts to make decisions.

A. Planning and Control

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
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- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
 - Evaluate technological processes by collecting data and applying mathematical models.
 - Apply knowledge of complex physical models to interpret data and apply mathematical models.

- 3.1.12 D Analyze scale as a way of relating concepts and ideas to one another by some measures.
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- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

B. Decision Making

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Pennsylvania *Science and Technology* Standards

National Business Education *Business Law* Standards

I. Basics of the Law: Analyze the relationship between ethics and the law and describe the sources of the law, the structure of the court system, the different classifications of procedural law and the different classifications of substantive law.

A. Ethics and the Law

B. Sources of the Law

3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.

C. Structure of the Courts

3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.

D. Classification of Procedural Law

E. Classification of Substantive Law

3.1.12 D Analyze the legal responsibilities of computer users.

II. Contract Law, Law of Sales and Consumer Law: Analyze the relationships among contract law, law of sales and consumer law.

A. Contract Law

B. Law of Sales

C. Consumer Law

- III. **Agency and Employment:** Analyze the role and importance of agency law and employment law as they relate to the conduct of business in the national and international marketplaces.
 - A. Agency
 - B. Employment

- IV. **Business Organizations:** Describe the major types of business organizations operating within the socio-economic arena of the national and international marketplace today and in the future.
 - A. Sole Proprietorships and Partnerships
 - B. Corporations
 - C. Limited Liability Corporations

- V. **Property Law:** Explain the legal rules that apply to personal property and real property.
 - A. Personal Property
 - B. Real Property

- VI. **Commercial Paper, Insurance, Secured Transactions, Bankruptcy:** Analyze the functions of commercial paper, insurance, secured transactions and bankruptcy.
 - A. Commercial Paper
 - B. Insurance
 - C. Secured Transactions
 - D. Bankruptcy

- VII. **Computer Law:** Explain how the advances in computer technology impact upon such areas as property law, contract law, criminal law and international law.
 - A. Basics of Computer Law
 - 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

B. Ownership Issues in Computer Law

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

C. Contract Issues in Computer Law

3.1.12 D Analyze the legal responsibilities of computer users.

D. Criminal Law and Privacy Issues in Compute Law

3.1.12 D Analyze the legal responsibilities of computer users.

E. International Issues in Computer Law

3.1.12 D Analyze the legal responsibilities of computer users.

VIII. Wills and Trusts: Determine appropriateness of wills and trusts in estate planning.

A. Wills

B. Trusts

IX. Domestic Relations Law: Explain the legal rules that apply to marriage, divorce and child custody.

A. Marriage and Its Legal Consequences

B. Divorce and Its Legal Consequences

X. Environmental Law and Energy Regulation: Explain the legal rules that apply to environmental law and energy regulation.

A. Environmental Law

3.1.12 E Evaluate change in nature, physical systems and man made systems.

3.6.12 C Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.

- Compare resource options in solving a specific manufacturing problem.
- Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications.

B. Energy Regulation

- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.6.12 C Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.
- Compare resource options in solving a specific manufacturing problem.
 - Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications.

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Pennsylvania *Science and Technology* Standards

National Business Education *Career Development* Standards

I. Self-Awareness: Assess personal skills, abilities, and aptitudes and personal strengths and weaknesses as they relate to career exploration and development.

A. Personal Skills, Abilities, and Aptitudes

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems

B. Personal Strengths and Weaknesses

II. Career Research: Utilize career resources to develop a career information database that includes international career opportunities.

A. Career Resources and Related Information

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

B. International Career Opportunities

III. Workplace Expectations: Relate the importance of workplace expectations to career development.

A. Work Ethic

B. Workplace Relationships

C. Workplace Diversity

D. Workplace Communication Skills

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems

E. Continual Skills Improvement

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

F. Virtual Work Environment

G. Career and Job Self-Management

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

IV. Career Strategy: Apply knowledge gained from individual assessment to a comprehensive set of goals and an individual career plan.

A. Self-Assessment and Career Research

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

B. Short- and Long-Term Career Goals

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

C. Individual Career Plan

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

V. School-to-Career Transition: Develop strategies to make an effective transition from school to career.

A. Workplace Experiences

B. Career Development File and Employment Portfolio

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

C. Job Search Strategies

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

VI. Lifelong Learning: Relate the importance of lifelong learning to career success.

A. Personal Growth

B. Career Growth

3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.

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Pennsylvania *Science and Technology* Standards

National Business Education *Communication* Standards

I. Foundations of Communication: Communicate in a clear, courteous, concise, and correct manner on personal and professional levels.

A. Oral Communication

- 3.2.12 C Evaluate the appropriateness of questions.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- Communicate and assess the process and evaluate and present the impacts of the solution.
- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message.
 - Analyze and evaluate a message designed and produced using still, motion, and animated communication techniques.
 - Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Analyze, select and apply the appropriate software to solve complex problems.
 - Evaluate the effectiveness of the computer as a presentation tool.
- 3.7.12E Assess the effectiveness of computer communications systems.

B. Informational Reading

C. Written Communication

- 3.2.12 C Evaluate the appropriateness of questions.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- Communicate and assess the process and evaluation and present the impacts of the solution.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message.
 - Analyze and evaluate a message designed and produced using still, motion, and animated communication techniques.
 - Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 D Evaluate the effectiveness of the computer as a presentation tool.

D. Social and Business Listening

- 3.2.12 D Evaluate the appropriateness of questions.

II. Social Communication: Apply basic social communication skills in personal and professional situations.

A. Positive Self-Concept and Image.

B. Human Relations and Interpersonal Skills

- 3.2.12 D Communicate and assess the process and evaluate and present the impacts of the solution.

III. Technological Communication: Use technology to enhance the effectiveness of communication.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message.
 - Analyze and evaluate a message designed and produced using still, motion, and animated communication techniques.
 - Apply various graphic and electronic information techniques to solve real world problems.
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- 3.7.12 D Analyze, select and apply the appropriate software to solve complex problems.
- Evaluate the effectiveness of the computer as a presentation tool.
 - Analyze the legal responsibilities of computer users.

- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications, and productivity.
- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- Compare and contrast how scientific and technological knowledge is both shared and protected.
 - Evaluate technological developments that have changed the way humans do work and discuss their impacts.
 - Evaluate socially proposed limitations of scientific research and technological applications.
- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.
- Apply appropriate tools, materials and processes to solve complex problems.
 - Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities.

IV. Employment Communication: Integrate all forms of communication in the successful pursuit of employment.

V. Organizational Communication: Incorporate appropriate leadership and supervision techniques, customer service strategies, and personal ethics standards to communicate effectively with various business constituencies.

A. Customer Relations

- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.8.12 C Analyze and communicate the positive and negative impacts that a recent technological invention had on society.

B. Business Relationships

C. Leadership

D. Supervisory Communication

E. Personal Ethics

- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.

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Pennsylvania *Science and Technology* Standards

National Business Education *Computation* Standards

(Standards I, II and III do not have level 3 standards since these standards are achieved at an earlier level.)

- I. Mathematical Foundations: Apply basic mathematical operations to solve problems.**
- II. Number Relationships and Operations: Solve problems involving whole numbers, decimals, fractions, percents, ratios, averages, and proportions.**
- III. Patterns, Functions, and Algebra: Use algebraic operations to solve problems.**
- IV. Measurements: Use common international standards of measurement when solving problems.**
- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
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- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
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- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

V. Statistics and Probability: Analyze and interpret data using common statistical procedures.

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
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 - Apply knowledge of complex physical models to interpret data and apply mathematical models.
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- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

VI. Problem-Solving Applications: Use mathematical procedures to analyze and solve business problems.

A. Taxation

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
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- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

B. Savings and Investments

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
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- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

C. Payroll and Human Resource Management

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
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- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

D. Cash Management

- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
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3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

E. Financial Management

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
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3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

F. Credit Management

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

G. Purchases

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

H. Sales

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

I. Inventory Records

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
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- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

J. Depreciation, Cost Recovery, and Depletion

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
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- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

K. Computers, Information Technology, and the Internet

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

L. Manufacturing and Office Costs

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

M. Insurance

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.7.12 E Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *Economics* Standards

I. Allocation of Resources: Asses opportunity costs and trade-offs involved in making choices about how to use scarce economic resources.

- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- Compare and contrast how scientific and technological knowledge is both shared and protected.
 - Evaluate technological developments that have changed the way humans do work and discuss their impacts (e.g., genetically engineered crops).
 - Evaluate socially proposed limitation of scientific research and technological application.
- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.
- Apply appropriate tools, material and processes to solve complex problems.
 - Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities.
 - Apply appropriate tools, materials, and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems.
 - Apply knowledge of agricultural science to develop a solution that will improve on a human need or want.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Propose solutions to specific scientific and technological applications, identifying possible financial considerations.
 - Analyze scientific and technological solutions through the use of risk/benefit analysis.
 - Analyze and communicate the positive or negative impacts that a recent technological invention had on society.
 - Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints).

II. Economic Systems: Explain why societies develop economic systems, identify the basic features of different economic systems, and analyze the major features of the U.S. economic system.

- 3.2.12 A Evaluate the nature of scientific and technological knowledge.
- Know and use the ongoing scientific processes to continually improve and better understanding how things work.
 - Critically evaluate the status of existing theories (e.g., germ theory of disease, wave theory of light, classification of subatomic particles, theory of evolution, epidemiology of aids).
- 3.2.12 B Evaluate experimental information for appropriateness and adherence to relevant science processes.
- Evaluate experimental data correctly within experimental limits.
 - Judge that conclusions are consistent and logical with experimental conditions.
 - Interpret results of experimental research to predict new information or improve a solution.
- 3.2.12 C Apply the elements of scientific inquiry to solve multi-step problems.
- Generate questions about objects, organisms and/or events that can be answered through scientific investigations.
 - Evaluate the appropriateness of questions.
 - Design and investigation with adequate control and limited variables to investigate a question.
 - Organize experimental information using analytic and descriptive techniques.
 - Evaluate the significance of experimental information in answering the question.
 - Project additional questions from a research study that could be studied.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.

III. Economic Institutions and Incentives: Analyze the role of core economic institutions and incentives in the U.S. economy.

- 3.5.12 B Analyze the availability, location and extraction of earth resources.
- Describe how the location of earth's major resources has affected a country's strategic decisions.
 - Compare locations of earth features and country boundaries.
 - Analyze the impact of resources (e.g., coal deposits, rivers) on the life of Pennsylvania's settlements and cities.

IV. Markets and Prices: Analyze the role or markets and prices in the U.S. economy.

- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- Compare and contrast how scientific and technological knowledge is both shared and protected.
 - Evaluate technological developments that have changed the way humans do work and discuss their impacts (e.g., genetically engineered crops).
 - Evaluate socially proposed limitation of scientific research and technological application.

V. Market Structures: Analyze the different types of market structures and the effect they have on the price and the quality of the foods and services produced.

NONE

VI. Productivity: Explain the importance of productivity and analyze how specialization, division of labor, investment in physical and human capital, and technological change affect productivity.

- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- Compare and contrast how scientific and technological knowledge is both shared and protected.
 - Evaluate technological developments that have changed the way humans do work and discuss their impacts (e.g., genetically engineered crops).
 - Evaluate socially proposed limitation of scientific research and technological application.

- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.
- Apply appropriate tools, material and processes to solve complex problems.
 - Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities.
 - Apply appropriate tools, materials, and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems.
 - Apply knowledge of agricultural science to develop a solution that will improve on a human need or want.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Propose solutions to specific scientific and technological applications, identifying possible financial considerations.
 - Analyze scientific and technological solutions through the use of risk/benefit analysis.
 - Analyze and communicate the positive or negative impacts that a recent technological invention had on society.
 - Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints).

VII. The Role of Government: Analyze the role of government in economic systems, especially the role of government in the U.S. economy

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply knowledge of control systems concept by designing and modeling control systems that solve specific problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
- Evaluate technological processes by collecting data and applying mathematical models (e.g., process control).
 - Apply knowledge of complex physical models to interpret data and apply mathematical models.
 - Appraise the importance of computer models in interpreting science and technological systems.

VIII. International Economic Concepts: Examine the role of trade, protectionism, and monetary market in the global economy

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply knowledge of control systems concept by designing and modeling control systems that solve specific problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.

IX. Aggregate Supply and Aggregate Demand: Analyze hoe the U.S. economy functions as a whole and describe selected macroeconomic measure of economic activity

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply knowledge of control systems concept by designing and modeling control systems that solve specific problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 C Assess and apply patterns in science and technology.
- Assess and apply recurring patterns in natural and technological systems.
 - Compare and contrast structure and function relationships as they relate to patterns.
 - Assess patterns in nature using mathematical formulas.

- 3.2.12 A Evaluate the nature of scientific and technological knowledge.
- Know and use the ongoing scientific processes to continually improve and better understanding how things work.
 - Critically evaluate the status of existing theories (e.g., germ theory of disease, wave theory of light, classification of subatomic particles, theory of evolution, epidemiology of aids).
- 3.2.12 B Evaluate experimental information for appropriateness and adherence to relevant science processes.
- Evaluate experimental data correctly within experimental limits.
 - Judge that conclusions are consistent and logical with experimental conditions.
 - Interpret results of experimental research to predict new information or improve a solution.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *Personal Finance* Standards

- I. **Personal Decision Making: Use a rational decision-making process as it applies to the roles of citizens, workers, and consumers.**
- II. **Earning a Living: Identify various forms of income and analyze factors that affect income as a part of the career decision-making process.**
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Analyze, select and apply the appropriate software to solve complex problems.
- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.
- Apply appropriate tools, material and processes to solve complex problems.
 - Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities.
 - Apply appropriate tools, materials, and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems.
- III. **Managing Finances and Budgeting: Develop and evaluate a spending/savings plan.**
- IV. **Saving and Investing: Evaluate savings and investment options to meet short- and long-term goals.**
- V. **Buying Goods and Services: Apply a decision-making model to maximize consumer satisfaction when buying goods and services.**

VI. Banking: Evaluate services provided by financial deposit institutions to transfer funds.

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Analyze, select and apply the appropriate software to solve complex problems.
- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- Compare and contrast how scientific and technological knowledge is both shared and protected.
 - Evaluate technological developments that have changed the way humans do work and discuss their impacts (e.g., genetically engineered crops).
 - Evaluate socially proposed limitation of scientific research and technological application.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Propose solutions to specific scientific and technological applications, identifying possible financial considerations.
 - Analyze scientific and technological solutions through the use of risk/benefit analysis.
 - Analyze and communicate the positive or negative impacts that a recent technological invention had on society.
 - Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints)

VII. Using Credit: Analyze factors that affect the choice of credit, the cost of credit, and the legal aspects of using credit.

VIII. Protecting Against Risk: Analyze choices available to consumers for protection against risk and financial loss.

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *Entrepreneurship* Standards

I. Entrepreneurs and Entrepreneurial Opportunities: Recognize that entrepreneurs possess unique characteristics and evaluate the degree to which one possesses those characteristics.

- A. Characteristics of an Entrepreneur**
- B. Role of the Entrepreneur in Business**
- C. Opportunity Recognition and Pursuit**
- D. Problem Identification and Solutions**

- 3.2.12 D Analyze and use the technological design process to solve problems.
 - Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
 - Evaluate the effectiveness of software to produce an output and demonstrate the process.
 - Design and apply advanced multimedia techniques.
 - Analyze, select and apply the appropriate software to solve complex problems.
 - Evaluate the effectiveness of the computer as a presentation tool.
 - Analyze the legal responsibilities of computer users.

- 3.7.12 E Assess the effectiveness of computer communications systems.
- Assess the effectiveness of a computer based communications system.
 - Transfer files among different computer platforms.
 - Analyze the effectiveness of online information resources to meet the needs for collaboration, research, publications, communications and productivity.
 - Apply knowledge of protocol standards to solve connectivity problems.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Propose solutions to specific scientific and technological applications, identifying possible financial considerations.
 - Analyze scientific and technological solutions through the use of risk/benefit analysis.
 - Analyze and communicate the positive or negative impacts that a recent technological invention had on society.
 - Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints).

II. Marketing: Analyze customer groups and develop a plan to identify, reach, and keep customers in a specific target market.

A. Identifying the Market

B. Reaching the Market

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message (e.g., desktop publishing, audio and/or video production).
 - Analyze and evaluate a message designed and produced using still, motion and animated communication techniques.
 - Describe the operation of fiber optic, microwave and satellite informational systems.
 - Apply various graphic and electronic information techniques to solve real world problems (e.g., data organization and analysis, forecasting, interpolation).

- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- Describe and demonstrate atypical software installation.
 - Analyze and solve hardware and advanced software problems.
 - Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Evaluate the effectiveness of software to produce an output and demonstrate the process.
 - Design and apply advanced multimedia techniques.
 - Analyze, select and apply the appropriate software to solve complex problems.
 - Evaluate the effectiveness of the computer as a presentation tool.
 - Analyze the legal responsibilities of computer users.
- 3.7.12 E Assess the effectiveness of computer communications systems.
- Assess the effectiveness of a computer based communications system.
 - Transfer files among different computer platforms.
 - Analyze the effectiveness of online information resources to meet the needs for collaboration, research, publications, communications and productivity.
 - Apply knowledge of protocol standards to solve connectivity problems.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints).

C. Keeping/Increasing the Market

III. Economics: Apply economic concepts when making decisions for an entrepreneurial venture.

A. Economic Concepts

B. Market Economy Characteristics

C. Function of Price

D. Role of Profit and Risk

- 3.2.12 D Analyze and use the technological design process to solve problems.
- Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Evaluate the effectiveness of software to produce an output and demonstrate the process.
 - Design and apply advanced multimedia techniques.
 - Analyze, select and apply the appropriate software to solve complex problems.
 - Evaluate the effectiveness of the computer as a presentation tool.
 - Analyze the legal responsibilities of computer users.

E. Role of Government

IV. Finance: Use the financial competencies needed by an entrepreneur.

A. Determining Cash Needs

- 3.2.12 B Evaluate experimental information for appropriateness and adherence to relevant science processes.
- Judge that conclusions are consistent and logical with experimental conditions.

B. Identifying Sources and Types of Funding

C. Interpreting Financial Statements

- 3.2.12 D Analyze and use the technological design process to solve problems.
- Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.

V. Accounting: Recognize that entrepreneurs must establish, maintain, and analyze appropriate records to make business decisions.

A. Keeping Business Records

B. Identifying Types of Business Records

C. Establishing and Using Business Records

- 3.2.12 D Analyze and use the technological design process to solve problems.
- Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.
 - Propose, develop and appraise the best solution and develop alternative solutions.
 - Implement and assess the solution.
 - Evaluate and assess the solution, redesign and improve as necessary.
 - Communicate and assess the process and evaluate and present the impact of the solution.

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
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 - Analyze the legal responsibilities of computer users.

- 3.7.12 E Assess the effectiveness of computer communications systems.
- Assess the effectiveness of a computer based communications system.
 - Transfer files among different computer platforms.
 - Analyze the effectiveness of online information resources to meet the needs for collaboration, research, publications, communications and productivity.
 - Apply knowledge of protocol standards to solve connectivity problems.

D. Interpreting Business Records

VI. Management: Develop a management plan for an entrepreneurial venture.

A. Establishing a Vision

B. Hiring Employees

- C. **Building Teams**
- D. **Monitoring Achievement**
- E. **Managing Risks**

VII. Global Markets: Analyze the effect of cultural differences, export/import opportunities, and trends on an entrepreneurial venture in the global marketplace.

- A. **Cultural Differences**
- B. **Import/Export Opportunities**

- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints).

C. Global Trends

- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.
- Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints).

VIII. Legal: Analyze how forms of business ownership, government, regulations, and business ethics affect entrepreneurial ventures.

A. Forms of Business Ownership

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Evaluate the effectiveness of software to produce an output and demonstrate the process.
 - Design and apply advanced multimedia techniques.
 - Analyze, select and apply the appropriate software to solve complex problems.
 - Evaluate the effectiveness of the computer as a presentation tool.
 - Analyze the legal responsibilities of computer users.

- 3.7.12 E Assess the effectiveness of computer communications systems.
- Assess the effectiveness of a computer based communications system.
 - Transfer files among different computer platforms.
 - Analyze the effectiveness of online information resources to meet the needs for collaboration, research, publications, communications and productivity.
 - Apply knowledge of protocol standards to solve connectivity problems.

B. Government Regulations

C. Business Ethics

IX. Business Plans: Develop a business plan.

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *Information Technology* Standards

I. Impact on Society: Assess the impact of information technology on society.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

II. Computer Architecture: Describe current and emerging computer architecture; configure, install, and upgrade hardware; diagnose and repair hardware problems.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

III. Operating Systems, Environments, and Utilities: Identify, evaluate, select, install, use, upgrade, customize, and diagnose and solve problems with various types of operating systems, environment, and utilities.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

IV. Information Technology and Major Business Functions: Describe the information technology components of major business functions and explain their interrelationships.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.6.12 C Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.

V. Application Software: Identify, evaluate, select, install, use, upgrade, and customize application software; diagnose and solve problems resulting from an application software's installation and use.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

VI. Input Technologies: Use input technologies appropriately to enter and manipulate text and data.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

VII. Information Retrieval: Gather, evaluate, use, and cite information from information technology sources.

- 3.7.12 E Assess the effectiveness of computer communications systems.

VIII. Database Management Systems: Use, plan, develop, and maintain database management systems.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

IX. Programming and Application Development: Design, develop, test, and implement programs.

3.6.12 C Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.

3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.

3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

X. Systems Analysis and Design: Analyze and design information systems using appropriate development tools.

XI. Communications and Networking Infrastructures: Develop the skills to design, deploy, and administer networks and communications systems.

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

3.7.12 A Apply advanced tools, materials and techniques to answer complex questions.

3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.

3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.

3.7.12 E Assess the effectiveness of computer communications systems.

3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.

3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

XII. Network Applications: Use, evaluate, and deploy communications and networking applications.

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

XIII. Information Technology Planning and Acquisition: Plan the selection and acquisition of information technologies.

- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

XIV. Technical Support and Training: Develop the technical and interpersonal skills and knowledge to support the user community.

- 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.7.12 C Evaluate computer operations and concepts as to their effectiveness to solve specific problems.
- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

XV. Risk Management: Design and implement risk management policies and procedures for information technology.

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.
- 3.8.12 B Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

XVI. Privacy and Ethics: Describe, analyze, develop, and follow policies for managing privacy and ethical issues in organizations and in a technology-based society.

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

XVII. Information Technology Careers: Describe positions and career paths in information technology.

3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.

3.7.12 E Assess the effectiveness of computer communications systems.

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *International Business* Standards

- I. Foundations of International Business: Explain the role of international business; analyze how it impacts business at all levels (including the local, state, national, and international levels).**
- A. Role and Impact**
 - 3.2.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - B. Geography**
 - C. Career Opportunities**
 - D. Travel Considerations**
- II. The Global Business Environment: Describe the interrelatedness of the social, cultural, political, legal, and economic factors that shape and impact the international business environment.**
- A. Social and Cultural Influences**
 - B. Political Environment**
 - C. Legal Systems**
 - D. Economic Environment**
 - 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
- III. International Business Communication: Apply communication strategies necessary and appropriate for effective and profitable international business relations.**
- A. Oral and Written Communication**
 - B. Nonverbal Communication**

C. Negotiations

D. Technology

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.
- 3.8.12 A Synthesize and evaluate the interactions and constraints of science and technology on society.
- 3.8.12 C Evaluate the consequences and impacts of scientific and technological solutions.

IV. Global Business Ethics: Describe the environmental factors that define what is considered ethical business behavior in a global business environment.

V. Organizational Structures for International Business Activities: Identify forms of business ownership and entrepreneurial opportunities available in international business.

A. Forms of Business Ownership

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.

B. Entrepreneurial Opportunities

- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.

C. International Business Involvement

D. International Business Success

VI. International Trade Relations: Relate balance of trade concepts to the import/export process.

A. Importing and Exporting

B. Trade Barriers and Agreements

C. Balance of Trade

- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.

VII. International Management: Analyze special challenges in operations in human resource management in international business.

A. Operations and Production

- 3.2.12 D Analyze and use the technological design process to solve problems.
3.7.12 E Assess the effectiveness of computer communications systems.

B. Human Resources

- 3.2.12 D Analyze and use the technological design process to solve problems.

C. Strategic Management

VIII. International Marketing: Apply marketing concepts to international business situations.

A. Foreign Markets and Consumer Behavior

- 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
3.1.12 D Analyze scale as a way of relating concepts and ideas to one another by some measure.
3.2.12 B Apply concepts of models as a method to predict and understand science and technology.
 - Evaluate experimental information for appropriateness and adherence to relevant science processes.3.7.12 E Assess the effectiveness of computer communication systems.

B. Marketing Research

C. Product Development

D. Standards and Measures

E. Pricing Strategies

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
3.1.12 B Apply concepts of models as a method to predict and understand science and technology.

F. Distribution Channels and Intermediaries

- 3.7.12 E Assess the effectiveness of computer communications systems.

- G. Transportation and Shipping**
- H. Promotional Activities**
- IX. International Finance: Explain the concepts, role, and importance of international finance and risk management.**
 - A. Currency and Exchange**
 - B. Financial Institutions and Trade Agreements**
 - C. Payment Methods and Reporting**
 - D. Risk Management**
 - 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
 - 3.1.12 D Analyze scale as a way of relating concepts and ideas to one another by some measure.

**NATIONAL BUSINESS EDUCATION STANDARDS
CROSS-REFERENCED WITH PENNSYLVANIA
ACADEMIC STANDARDS**

Pennsylvania *Science and Technology* Standards

National Business Education *Management* Standards

- I. **Management Functions: Analyze the management functions and their implementation and integration within the business environment.**
 - A. **Planning**
 - B. **Organizing**
 - C. **Leading/Directing**
 - D. **Evaluation/Controlling**

- II. **Management Theories: Analyze management theories and their application within the business environment.**

- III. **Business Organization: Analyze the organization of a business.**
 - A. **Forms of Business Ownership**
 - B. **Management Levels**
 - C. **Organizational Structure**

- IV. **Personal Management Skills: Develop personal management skills to function effectively and efficiently in a business environment.**
 - A. **Time Management**
 - B. **Stress Management**
 - C. **Professional Growth and Development**
 - D. **Communication Skills**
 - E. **Relationship Building**

- V. **Ethics and Social Responsibility: Examine the role of ethics and social responsibility in decision making.**
- A. **Ethics**
 - B. **Social Responsibility**
- VI. **Human Resource Management: Describe human resource functions and their importance to an organization's successful operation.**
- A. **Human Resource Planning**
 - B. **Recruitment and Selection**
 - 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - C. **Employee Development**
 - D. **Evaluation**
 - 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - E. **Compensation, Promotion, Benefits, and Incentives**
 - F. **Separations, Termination, and Transition**
 - G. **Labor Relations**
- VII. **Organized Labor: Describe the role of organized labor and its influence on government and business.**
- VIII. **Technology and Information Management: Utilize information and technology tools to conduct business effectively and efficiently.**
- A. **Technology Tools**
 - 3.6.12 B Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
 - Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message.
 - Analyze and evaluate a message designed and produced using still, motion and animated communication techniques.
 - Apply various graphic and electronic information techniques to solve real world problems.

- 3.7.12 D Evaluate the effectiveness of computer software to solve specific problems.
- Design and apply advanced multimedia techniques.
 - Analyze, select and apply the appropriate software to solve complex problems.
 - Evaluate the effectiveness of the computer as a presentation tool.
- 3.7.12 E Assess the effectiveness of computer communications systems.
- Assess the effectiveness of a computer based communications system.
 - Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
 - Apply knowledge of protocol standards to solve connectivity problems.

B. Information Management

C. E-Business

- 3.7.12 E Access the effectiveness of computer communications systems.
- Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.
 - Apply knowledge of protocol standards to solve connectivity problems.

IX. Industry Analysis: Analyze a business organization's competitive position within the industry.

A. Competition

B. Competitive Advantage

- 3.1.12 B Evaluate experimental information for appropriateness and adherence to relevant science processes.

C. Internal and External Sources of Data

- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.7.12 E Assess the effectiveness of computer communications systems.

- X. Financial Decision Making: Analyze financial data influenced by internal and external factors in order to make short-term and long-term decisions.**
 - A. Financial Statements**
 - 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - 3.1.12 D Analyze scale as a way of relating concepts and ideas to one another by some measure.
 - B. Short-Term and Long-Term Financing**
 - 3.1.12 B Apply concepts of models as a method to predict and understand science and technology.
 - C. Risk Management**
- XI. Operations Management: Apply operations management principals and procedures to the design of an operations plan.**
 - A. Product Design (Goods/Services)**
 - B. Scheduling**
 - C. Materials Procurement**
 - D. Inventory Management**
 - E. Quality Standards**
- XII. Global Perspective: Examine the issues of managing in the global environment.**
 - A. Legal Issues**
 - B. Economic Considerations**
 - C. Workplace Diversity**
 - D. Global Partnering**

NATIONAL BUSINESS EDUCATION STANDARDS CROSS-REFERENCED WITH PENNSYLVANIA ACADEMIC STANDARDS

Pennsylvania *Science and Technology* Standards

National Business Education *Marketing* Standards

I. Foundations of Marketing: Recognize the customer-oriented nature of marketing and analyze the impact of marketing activities on the individual, business, and society.

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

II. Consumers and Their Behavior: Analyze the characteristics, motivations, and behaviors of consumers.

A. Characteristics of Consumer Behavior

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.

- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

B. Segmentation and Target Markets

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

III. External Factors: Analyze the influence of external factors on marketing.

A. Government and Legal Regulations

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

B. Ethical Issues

3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

C. Economic Issues

3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.

- Apply systems analysis to predict results.
- Analyze and describe the function, interaction and relationship among subsystems and the system itself.
- Compare and contrast several systems that could be applied to solve a single problem.
- Evaluate the causes of a system's inefficiency.

3.1.12 E Evaluate change in nature, physical systems and man made systems.

3.2.12 D Analyze and use the technological design process to solve problems.

3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.

3.7.12 C Assess and apply multiple input and output devices to solve specific problems.

3.7.12 D Analyze, select and apply appropriate software to solve complex problems.

3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.

3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

D. Competitive Environment

3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.

- Apply systems analysis to predict results.
- Analyze and describe the function, interaction and relationship among subsystems and the system itself.
- Compare and contrast several systems that could be applied to solve a single problem.
- Evaluate the causes of a system's inefficiency.

3.1.12 E Evaluate change in nature, physical systems and man made systems.

3.2.12 D Analyze and use the technological design process to solve problems.

3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

E. Stakeholders

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

F. Culture

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.

- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

G. Technology

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

IV. The Marketing Mix: Analyze the elements of the marketing mix, their interrelationships, and how they are used in the marketing process.

A. Products and Services

1. Classification

- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.

2. New Product Development and Ideas

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

3. Packaging

- 3.1.12 A Apply systems analysis to predict results. Analyze and describe the function, interaction and relationship among subsystems and the system itself. Compare and contrast several systems that could be applied to solve a single problem. Evaluate the causes of a system's inefficiency.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.

4. Branding

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

5. Product Mix

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

6. Service Extensions

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.

7. Product Life Cycle

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

B. Place

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.

- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

C. Price

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 C Assess and apply multiple input and output devices to solve specific problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

D. Promotion

1. Advertising

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.

- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

2. Sales Promotion

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
- 3.2.12 D Analyze and use the technological design process to solve problems.
- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

3. Public Relations and Publicity

- 3.2.12 D Analyze and use the technological design process to solve problems.

- 3.6.12 B Apply various graphic and electronic information techniques to solve real world problems.
- 3.7.12 A Evaluate and use technological resources to solve complex multi-step problems.
- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

4. Personal Selling

- 3.7.12 D Analyze, select and apply appropriate software to solve complex problems.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.

V. Marketing Research: Analyze the role of marketing research in decision making.

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
 - Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
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- 3.8.12 A Evaluate technological developments that have changed the way humans do work and discuss their impacts.
- 3.8.12 B Apply appropriate tools, materials and processes to solve complex problems.
- 3.8.12 C Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements.

VI. The Marketing Plan: Describe the elements, design, and purposes of a marketing plan.

- 3.1.12 A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
- Apply systems analysis to predict results.
 - Analyze and describe the function, interaction and relationship among subsystems and the system itself.
 - Compare and contrast several systems that could be applied to solve a single problem.
 - Evaluate the causes of a system's inefficiency.
- 3.1.12 E Evaluate change in nature, physical systems and man made systems.
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