

**Introduction to Information Technology
Current Standards**

**Introduction to Information Technology
Proposed Standards - NO CHANGES**

INDICATOR # IT 1. Understand the need and impact of technology.	
Level 1: Recall	SUB-INDICATOR 1.1 Define the relationship between electronic devices and computers.
Level 1: Recall	SUB-INDICATOR 1.2 Describe the functional areas in which computers assist people.
Level 1: Recall	SUB-INDICATOR 1.3 Describe how technology is impacting community.
Level 1: Recall	SUB-INDICATOR 1.4 List physical and mental health dangers associated with computer use.

INDICATOR # IT 1. Understand the need and impact of technology.	
Level 1: Recall	IT 1.1 Define the relationship between electronic devices and computers.
Level 1: Recall	IT 1.2 Describe the functional areas in which computers assist people.
Level 1: Recall	IT 1.3 Describe how technology is impacting community.
Level 1: Recall	IT 1.4 List physical and mental health dangers associated with computer use.

INDICATOR #IT 2. Understand computer hardware required to meet specific needs.	
Level 1: Recall	SUB-INDICATOR 2.1 Understand how computer information is represented.
Level 1: Recall	SUB-INDICATOR 2.2 Identify hardware components and their relationship to computer usage.
Level 2: Skill/Concept	SUB-INDICATOR 2.3 Understand different types of memory and storage.
Level 1: Recall	SUB-INDICATOR 2.4 Identify input and output devices to meet the needs of users.
Level 2: Skill/Concept	SUB-INDICATOR 2.5 Understand the decision-making process involved in purchasing computer systems.

INDICATOR #IT 2. Understand computer hardware required to meet specific needs.	
Level 1: Recall	IT 2.1 Understand how computer information is represented.
Level 1: Recall	IT 2.2 Identify hardware components and their relationship to computer usage.
Level 2: Skill/Concept	IT 2.3 Understand different types of memory and storage.
Level 1: Recall	IT 2.4 Identify input and output devices to meet the needs of users.
Level 2: Skill/Concept	IT 2.5 Understand the decision-making process involved in purchasing computer systems.

INDICATOR #IT 3. Understand software solutions for personal and professional use.	
Level 2: Skill/Concept	SUB-INDICATOR 3.1 Explain how software is created, distributed, installed, and maintained.
Level 1: Recall	SUB-INDICATOR 3.2 Describe the functions of system software and operating systems.
Level 2: Skill/Concept	SUB-INDICATOR 3.3 Describe different types and purposes of productivity software.

INDICATOR #IT 3. Understand software solutions for personal and professional use.	
Level 2: Skill/Concept	IT 3.1 Explain how software is created, distributed, installed, and maintained.
Level 1: Recall	IT 3.2 Describe the functions of system software and operating systems.
Level 2: Skill/Concept	IT 3.3 Describe different types and purposes of productivity software.

INDICATOR #IT 4. Understand technology used for the Internet.	
Level 1: Recall	SUB-INDICATOR 4.1 Describe how the Internet developed.

INDICATOR #IT 4. Understand technology used for the Internet.	
Level 1: Recall	IT 4.1 Describe how the Internet developed.

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Level 1: Recall	SUB-INDICATOR 4.2 Explain how hardware, protocols, and software work together to create the Internet.
Level 2: Skill/Concept	SUB-INDICATOR 4.3 Explain the underlying structures and technologies used to support the Internet.

INDICATOR #IT 5. Understand computer network and telecommunications technologies.

Level 1: Recall	SUB-INDICATOR 5.1 Understand the fundamentals of data communications.
Level 1: Recall	SUB-INDICATOR 5.2 List the types of media, devices, and software needed for networking services.
Level 1: Recall	SUB-INDICATOR 5.3 List and describe the popular forms of wireless technologies.

INDICATOR #IT 6. Understand the needs and uses for digital media.

Level 1: Recall	SUB-INDICATOR 6.1 Understand the uses of digital media.
Level 2: Skill/Concept	SUB-INDICATOR 6.2 Discuss how interactive media is used to educate and entertain.

INDICATOR #IT 7. Understand computer crime and information security.

Level 1: Recall	SUB-INDICATOR 7.1 Describe methods of keeping electronic devices secure.
Level 2: Skill/Concept	SUB-INDICATOR 7.2 Discuss the threats and defenses for networks.
Level 3: Strategic Thinking	SUB-INDICATOR 7.3 Describe the threats posed by hackers, software, scams and the methods of defending against them.

INDICATOR #IT 8. Understand technology ethics in a global society.

Level 2: Skill/Concept	SUB-INDICATOR 8.1 Describe the negative and positive impacts of social media.
Level 2: Skill/Concept	SUB-INDICATOR 8.2 Explain the ways in which technology is used to invade personal privacy.
Level 1: Recall	SUB-INDICATOR 8.3 Identify ethical issues related to digital technology.

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Level 1: Recall	IT 4.2 Explain how hardware, protocols, and software work together to create the Internet.
Level 2: Skill/Concept	IT 4.3 Explain the underlying structures and technologies used to support the Internet.

INDICATOR #IT 5. Understand computer network and telecommunications technologies.

Level 1: Recall	IT 5.1 Understand the fundamentals of data communications.
Level 1: Recall	IT 5.2 List the types of media, devices, and software needed for networking services.
Level 1: Recall	IT 5.3 List and describe the popular forms of wireless technologies.

INDICATOR #IT 6. Understand the needs and uses for digital media.

Level 1: Recall	IT 6.1 Understand the uses of digital media.
Level 2: Skill/Concept	IT 6.2 Discuss how interactive media is used to educate and entertain.

INDICATOR #IT 7. Understand computer crime and information security.

Level 1: Recall	IT 7.1 Describe methods of keeping electronic devices secure.
Level 2: Skill/Concept	IT 7.2 Discuss the threats and defenses for networks.
Level 3: Strategic Thinking	IT 7.3 Describe the threats posed by hackers, software, scams and the methods of defending against them.

INDICATOR #IT 8. Understand technology ethics in a global society.

Level 2: Skill/Concept	IT 8.1 Describe the negative and positive impacts of social media.
Level 2: Skill/Concept	IT 8.2 Explain the ways in which technology is used to invade personal privacy.
Level 1: Recall	IT 8.3 Identify ethical issues related to digital technology.

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INDICATOR #IT 9. Explore careers in information technology.	
Level 1: Recall	SUB-INDICATOR 9.1 Identify skills, interests, and abilities related to information technology.
Level 2: Skill/Concept	SUB-INDICATOR 9.2 Compare personal interest survey results with information technology occupations.
Level 3: Strategic Thinking	SUB-INDICATOR 9.3 Research labor market information for information technology.
Level 2: Skill/Concept	SUB-INDICATOR 9.4 Demonstrate necessary job skills needed for Information and Technology industries.

INDICATOR #IT 10. Demonstrate knowledge of the software development process.	
	SUB-INDICATOR 10.1 Apply tools for developing software applications.
	SUB-INDICATOR 10.2 Demonstrate knowledge of programming structures.

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INDICATOR #IT 9. Explore careers in information technology.	
Level 1: Recall	IT 9.1 Identify skills, interests, and abilities related to information technology.
Level 2: Skill/Concept	IT 9.2 Compare personal interest survey results with information technology occupations.
Level 3: Strategic Thinking	IT 9.3 Research labor market information for information technology.
Level 2: Skill/Concept	IT 9.4 Demonstrate necessary job skills needed for Information and Technology industries.

INDICATOR #IT 10. Demonstrate knowledge of the software development process.	
Level 4: Extended Thinking	IT 10.1 Apply tools for developing software applications.
Level 3: Strategic Thinking	IT 10.2 Demonstrate knowledge of programming structures.

Computer Hardware and Software Current Standards

INDICATOR # CIT 1. Apply knowledge of hardware design, operation and maintenance.	
Level 2: Skill/Concept	CIT 1.1 Understand how to design and assemble systems that use computer programs to interact with hardware.
Level 3: Strategic Thinking	CIT 1.2 Install and configure essential computer hardware and software components .

INDICATOR # CIT 2. Understand the relationships among computer hardware, networks, and operating systems.	
Level 1: Recall	CIT 2.1 Identify new IT technologies relevant to computer hardware.
Level 2: Skill/Concept	CIT 2.2 Determine compatibility of hardware and software.
Level 2: Skill/Concept	CIT 2.2 Understand the difference between an operating system, utility programs, and application software.

INDICATOR # CIT 3. Understand basic networking services.	
Level 2: Skill/Concept	CIT 3.1 Understand the basics of Internet protocol (IP) addressing.
Level 4: Extended Thinking	CIT 3.2 Troubleshoot basic network problems.

INDICATOR # CIT 4. Explore careers in information technology.	
Level 1: Recall	CIT 4.1 Identify skills, interests, and abilities related to information technology.
Level 2: Skill/Concept	CIT 4.2 Identify personal interests using survey instruments with information technology occupations.
Level 3: Strategic Thinking	CIT 4.3 Research labor market information for information technology.
Level 2: Skill/Concept	CIT 4.4 Demonstrate necessary job skills needed for Information and Technology industries.

Computer Hardware and Software Proposed Standards

INDICATOR # CIT 1. Apply knowledge of hardware design, operation and maintenance.	
Level 3: Strategic Thinking	CIT 1.1 Understand how to design and assemble systems that use computer programs to interact with hardware.
Level 3: Strategic Thinking	CIT 1.2 Install and configure essential computer hardware and software components .

INDICATOR # CIT 2. Understand the relationships among computer hardware, networks, and operating systems.	
Level 1: Recall	CIT 2.1 Identify new IT technologies relevant to computer hardware.
Level 2: Skill/Concept	CIT 2.2 Determine compatibility of hardware and software.
Level 2: Skill/Concept	CIT 2.2 Understand the difference between an operating system, utility programs, and application software.

INDICATOR # CIT 3. Understand basic networking services.	
Level 2: Skill/Concept	CIT 3.1 Understand the basics of Internet protocol (IP) addressing.
Level 4: Extended Thinking	CIT 3.2 Troubleshoot basic hardware and software problems.

INDICATOR # CIT 4. Explore careers in information technology.	
Level 1: Recall	CIT 4.1 Identify skills, interests, and abilities related to information technology.
Level 2: Skill/Concept	CIT 4.2 Identify personal interests using survey instruments with information technology occupations.
Level 3: Strategic Thinking	CIT 4.3 Research labor market information for information technology.
Level 2: Skill/Concept	CIT 4.4 Demonstrate necessary job skills needed for Information and Technology industries.

Web Development I & II Current Standards

INDICATOR # WD 1. Identify basic principles of how the Internet is constructed, how it functions and how it is used.

Level 1: Recall	WD 1.1 Identify the infrastructure required to access the Internet.
Level 1: Recall	WD 1.2 Summarize Internet development and functions.
Level 1: Recall	WD 1.3 Recognize the purpose of domains.
Level 2: Skill/Concept	WD 1.4 Define the function of a Domain Name Server (DNS).
Level 1: Recall	WD 1.5 Define important Internet communications protocols and their roles in delivering basic Internet services.
Level 1: Recall	WD 1.6 Demonstrate knowledge of standard copyright rules.
Level 2: Skill/Concept	WD 1.7 Explain the use and purpose of acceptable use policy (AUP).

INDICATOR # WD 2. Demonstrate creation of web pages.

Level 2: Skill/Concept	WD 2.1 Demonstrate knowledge required to create a web page.
Level 2: Skill/Concept	WD 2.2 Demonstrate appropriate file structure and naming.
Level 2: Skill/Concept	WD 2.3 Create web pages with appropriate HTML structure and standards that can be validated using World Wide Web Consortium validator (W3C).
Level 3: Strategic Thinking	WD 2.4 Demonstrate the use of elements and attributes.
Level 2: Skill/Concept	WD 2.5 Incorporate meta tags for page documentation and search engine optimization (SEO).
Level 4: Extended Thinking	WD 2.6 Implement advanced elements to create web pages.

INDICATOR # WD 3. Format web pages using Cascading Style Sheets (CSS).

Level 2: Skill/Concept	WD 3.1 Apply essential aspects of the CSS.
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Web Development Proposed Standards

INDICATOR # WD 1. Identify basic principles of how the Internet is constructed, how it functions and how it is used.

Level 1: Recall	WD 1.1 Identify the infrastructure required to access the Internet.
Level 1: Recall	WD 1.2 Summarize Internet development and functions.
Level 1: Recall	WD 1.3 Recognize the purpose of domains.
Level 2: Skill/Concept	WD 1.4 Define the function of a Domain Name Server (DNS).
Level 1: Recall	WD 1.5 Define important Internet communications protocols and their roles in delivering basic Internet services.
Level 1: Recall	WD 1.6 Demonstrate knowledge of standard copyright rules.
Level 2: Skill/Concept	WD 1.7 Explain the use and purpose of acceptable use policy (AUP).

INDICATOR # WD 2. Demonstrate creation of web pages.

Level 2: Skill/Concept	WD 2.1 Demonstrate knowledge required to create a web page.
Level 2: Skill/Concept	WD 2.2 Demonstrate appropriate file structure and naming.
Level 2: Skill/Concept	WD 2.3 Create web pages with appropriate HTML structure and standards that can be validated using World Wide Web Consortium validator (W3C).
Level 3: Strategic Thinking	WD 2.4 Demonstrate the use of elements and attributes.
Level 2: Skill/Concept	WD 2.5 Incorporate meta tags for page documentation and search engine optimization (SEO).

INDICATOR # WD 3. Format web pages using Cascading Style Sheets (CSS).

Level 2: Skill/Concept	WD 3.1 Apply essential aspects of the CSS.
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**Web Development I & II
Current Standards**

Level 2: Skill/Concept	WD 3.2 Apply CSS to a website.
Level 3: Strategic Thinking	WD 3.3 Use selectors in a CSS.
Level 4: Extended Thinking	WD 3.4 Format page layout with advanced CSS.

INDICATOR # WD 4. Explore advanced web concepts.

Level 2: Skill/Concept	WD 4.1 Analyze project requirements.
Level 2: Skill/Concept	WD 4.2 Plan site design and page layout.
Level 4: Extended Thinking	WD 4.3 Create content for website.
Level 4: Extended Thinking	WD 4.4 Upload and maintain a site.

INDICATOR # WD 5. Identify basic principles of how the Internet is constructed, how it functions and how it is used.

Level 3: Strategic Thinking	WD 5.1 Demonstrate the use of scripting and other interactive tools.
Level 2: Skill/Concept	WD 5.2 Explore other web technologies.

INDICATOR # WD 6. Explore careers in Web Development.

Level 2: Skill/Concept	WD 6.1 Explore Information Technology (IT) Web Development careers.
Level 2: Skill/Concept	WD 6.2 Demonstrate job skills for programming industries.

**Web Development
Proposed Standards**

Level 2: Skill/Concept	WD 3.2 Apply CSS to a website.
Level 3: Strategic Thinking	WD 3.3 Use basic selectors in a CSS.

INDICATOR # WD 4. Plan, design, implement, and maintain website(s).

Level 2: Skill/Concept	WD 4.1 Analyze project requirements.
Level 3: Strategic Thinking	WD 4.2 Plan site design and page layout.
Level 4: Extended Thinking	WD 4.3 Create basic content for website.
Level 4: Extended Thinking	WD 4.4 Edit and revise a site.

INDICATOR # WD 5. Explore careers in Web Development.

Level 2: Skill/Concept	WD 5.1 Explore Information Technology (IT) Web Development careers.
Level 2: Skill/Concept	WD 5.2 Demonstrate job skills for programming industries.

Web Development I & II Current Standards

INDICATOR # WD 1. Identify basic principles of how the Internet is constructed, how it functions and how it is used.

Level 1: Recall	WD 1.1 Identify the infrastructure required to access the Internet.
Level 1: Recall	WD 1.2 Summarize Internet development and functions.
Level 1: Recall	WD 1.3 Recognize the purpose of domains.
Level 2: Skill/Concept	WD 1.4 Define the function of a Domain Name Server (DNS).
Level 1: Recall	WD 1.5 Define important Internet communications protocols and their roles in delivering basic Internet services.
Level 1: Recall	WD 1.6 Demonstrate knowledge of standard copyright rules.
Level 2: Skill/Concept	WD 1.7 Explain the use and purpose of acceptable use policy (AUP).

INDICATOR # WD 2. Demonstrate creation of web pages.

Level 2: Skill/Concept	WD 2.1 Demonstrate knowledge required to create a web page.
Level 2: Skill/Concept	WD 2.2 Demonstrate appropriate file structure and naming.
Level 2: Skill/Concept	WD 2.3 Create web pages with appropriate HTML structure and standards that can be validated using World Wide Web Consortium validator (W3C).
Level 3: Strategic Thinking	WD 2.4 Demonstrate the use of elements and attributes.
Level 2: Skill/Concept	WD 2.5 Incorporate meta tags for page documentation and search engine optimization (SEO).
Level 4: Extended Thinking	WD 2.6 Implement advanced elements to create web pages.

INDICATOR # WD 3. Format web pages using Cascading Style Sheets (CSS).

Level 2: Skill/Concept	WD 3.1 Apply essential aspects of the CSS.
Level 2: Skill/Concept	WD 3.2 Apply CSS to a website.
Level 3: Strategic Thinking	WD 3.3 Use selectors in a CSS.
Level 4: Extended Thinking	WD 3.4 Format page layout with advanced CSS.

Advanced Web Development Proposed Standards

INDICATOR # AWD 1. Demonstrate creation of a website for a real-world application.

Level 3: Strategic Thinking	AWD 1.1 Create a website.
Level 3: Strategic Thinking	AWD 1.2 Develop appropriate file structure and naming.
Level 3: Strategic Thinking	AWD 1.3 Create website with appropriate HTML structure and standards that can be validated using World Wide Web Consortium validator (W3C).
Level 3: Strategic Thinking	AWD 1.4 Demonstrate the use of elements and attributes.
Level 3: Strategic Thinking	AWD 1.5 Incorporate meta tags for page documentation and search engine optimization (SEO).
Level 4: Extended Thinking	AWD 1.6 Implement advanced elements to create a website.

Indicator # AWD 2 Format website using Cascading Style Sheets (CSS).

Level 3: Strategic Thinking	AWD 2.1 Apply essential aspects of the CSS.
Level 3: Strategic Thinking	AWD 2.2 Apply CSS to a website.
Level 4: Extended Thinking	AWD 2.3 Use selectors in a CSS.
Level 4: Extended Thinking	AWD 2.4 Format page layout with advanced CSS.

**Web Development I & II
Current Standards**

**Advanced Web Development
Proposed Standards**

INDICATOR # AWD 3. Plan, design, implement, and maintain website(s).

Level 3: Strategic Thinking	AWD 3.1 Analyze project requirements.
Level 3: Strategic Thinking	AWD 3.2 Develop site design and page layout utilizing best practices.
Level 4: Extended Thinking	AWD 3.3 Create content for website.
Level 4: Extended Thinking	AWD 3.4 Upload and maintain a site.

INDICATOR # WD 4. Explore advanced web concepts.

Level 2: Skill/Concept	WD 4.1 Analyze project requirements.
Level 2: Skill/Concept	WD 4.2 Plan site design and page layout.
Level 4: Extended Thinking	WD 4.3 Create content for website.
Level 4: Extended Thinking	WD 4.4 Upload and maintain a site.

INDICATOR # AWD 4. Explore advanced web concepts.

Level 3: Strategic Thinking	AWD 4.1 Demonstrate the use of scripting and other interactive tools.
Level 2: Skill/concept	AWD 4.2 Explore other web technologies.

INDICATOR # WD 5. Identify basic principles of how the Internet is constructed, how it functions and how it is used.

Level 3: Strategic Thinking	WD 5.1 Demonstrate the use of scripting and other interactive tools.
Level 2: Skill/Concept	WD 5.2 Explore other web technologies.

INDICATOR # WD 6. Explore careers in Web Development.

Level 2: Skill/Concept	WD 6.1 Explore Information Technology (IT) Web Development careers.
Level 2: Skill/Concept	WD 6.2 Demonstrate job skills for programming industries.

Computer Programming I & II Current Standards

INDICATOR # CP 1. Identify and use a programming environment.

Level 1: Recall	CP 1.1 Demonstrate knowledge of external and internal computer hardware.
Level 1: Recall	CP 1.2 Demonstrate knowledge of software concepts.
Level 2: Skill/Concept	CP 1.3 Demonstrate the ability to compile, debug, and execute programs.

INDICATOR # CP 2. Employ standard conventions for creation and design of a software program.

Level 2: Skill/Concept	CP 2.1 Demonstrate the ability to use a standard programming style.
Level 2: Skill/Concept	CP 2.2 Recognize software development processes.
Level 1: Recall	CP 2.3 Identify the syntactical components of a program.

INDICATOR # CP 3. Properly use language-fundamental commands and operations.

Level 2: Skill/Concept	CP 3.1 Demonstrate the ability to use basic elements of a specific language.
Level 2: Skill/Concept	CP 3.2 Employ basic arithmetic expressions in programs.
Level 3: Strategic Thinking	CP 3.3 Demonstrate the ability to use data types in programs.
Level 2: Skill/Concept	CP 3.4 Incorporate functions/methods.

INDICATOR # CP 4. Apply control structures.

Level 2: Skill/Concept	CP 4.1 Demonstrate the ability to use relational and logical operators in programs.
Level 3: Strategic Thinking	CP 4.2 Investigate conditional statements.
Level 3: Strategic Thinking	CP 4.3 Implement loops in programs.

INDICATOR # CP 5. Explore career opportunities in programming.

Level 1: Recall	CP 5.1 Identify personal interests and abilities related to Computer Programming/Software Engineering careers.
Level 3: Strategic Thinking	CP 5.2 Investigate career opportunities, trends, and requirements related to computer programming/software engineering careers.

Computer Programming Proposed Standards

INDICATOR # CP 1. Identify and use a programming environment.

Level 1: Recall	CP 1.1 Demonstrate knowledge of software concepts.
Level 2: Skill/Concept	CP 1.2 Demonstrate the ability to compile, debug, and execute programs.

INDICATOR # CP 2. Employ standard conventions for creation and design of a software program.

Level 2: Skill/Concept	CP 2.1 Demonstrate the ability to use a standard programming style.
Level 2: Skill/Concept	CP 2.2 Recognize software development processes.
Level 1: Recall	CP 2.3 Identify the syntactical components of a program.

INDICATOR # CP 3. Properly use language-fundamental commands and operations.

Level 2: Skill/Concept	CP 3.1 Demonstrate the ability to use basic elements of a specific language.
Level 2: Skill/Concept	CP 3.2 Employ basic arithmetic expressions in programs.
Level 3: Strategic Thinking	CP 3.3 Demonstrate the ability to use data types in programs.
Level 2: Skill/Concept	CP 3.4 Incorporate functions/methods.

INDICATOR # CP 4. Apply control structures.

Level 2: Skill/Concept	CP 4.1 Demonstrate the ability to use relational and logical operators in programs.
Level 3: Strategic Thinking	CP 4.2 Investigate conditional statements.
Level 3: Strategic Thinking	CP 4.3 Implement loops in programs.

INDICATOR # CP 5. Explore career opportunities in programming.

Level 1: Recall	CP 5.1 Identify personal interests and abilities related to Computer Programming/Software Engineering careers.
Level 3: Strategic Thinking	CP 5.2 Investigate career opportunities, trends, and requirements related to computer programming/software engineering careers.

Computer Programming I & II Current Standards

Level 2: Skill/Concept	CP 5.3 Demonstrate job skills for programming industries.
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INDICATOR # CP 6. Integrate arrays.

Level 2: Skill/Concept	CP 6.1 Demonstrate the ability to use arrays in programs.
Level 3: Strategic Thinking	CP 6.2 Demonstrate the ability to use strings in programs.

INDICATOR # CP 7. Implement object-oriented programming techniques.

Level 3: Strategic Thinking	CP 7.1 Demonstrate the ability to use existing classes.
Level 4: Extended Thinking	CP 7.2 Demonstrate the ability to create user-defined classes.
Level 4: Extended Thinking	CP 7.3 Demonstrate proper design principles with classes.

Computer Programming Proposed Standards

Level 2: Skill/Concept	CP 5.3 Demonstrate job skills for programming industries.
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Computer Programming I & II Current Standards

INDICATOR # CP 1. Identify and use a programming environment.

Level 1: Recall	CP 1.1 Demonstrate knowledge of external and internal computer hardware.
Level 1: Recall	CP 1.2 Demonstrate knowledge of software concepts.
Level 2: Skill/Concept	CP 1.3 Demonstrate the ability to compile, debug, and execute programs.

INDICATOR # CP 2. Employ standard conventions for creation and design of a software program.

Level 2: Skill/Concept	CP 2.1 Demonstrate the ability to use a standard programming style.
Level 2: Skill/Concept	CP 2.2 Recognize software development processes.
Level 1: Recall	CP 2.3 Identify the syntactical components of a program.

INDICATOR # CP 3. Properly use language-fundamental commands and operations.

Level 2: Skill/Concept	CP 3.1 Demonstrate the ability to use basic elements of a specific language.
Level 2: Skill/Concept	CP 3.2 Employ basic arithmetic expressions in programs.
Level 3: Strategic Thinking	CP 3.3 Demonstrate the ability to use data types in programs.
Level 2: Skill/Concept	CP 3.4 Incorporate functions/methods.

INDICATOR # CP 4. Apply control structures.

Level 2: Skill/Concept	CP 4.1 Demonstrate the ability to use relational and logical operators in programs.
Level 3: Strategic Thinking	CP 4.2 Investigate conditional statements.
Level 3: Strategic Thinking	CP 4.3 Implement loops in programs.

INDICATOR # CP 5. Explore career opportunities in programming.

Level 1: Recall	CP 5.1 Identify personal interests and abilities related to Computer Programming/Software Engineering careers.
Level 3: Strategic Thinking	CP 5.2 Investigate career opportunities, trends, and requirements related to computer programming/software engineering careers.

Advanced Computer Programming Proposed Standards

INDICATOR # ACP 1. Utilize problem solving skills in a programming environment.

Level 3: Strategic Thinking	ACP 1.1 Demonstrate the ability to compile, apply problem solving to debugging and executing programs.
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INDICATOR # ACP 2 Employ advanced conventions for creation and design of a software program.

Level 3: Strategic Thinking	ACP 1.1 Demonstrate the ability to compile, apply problem solving to debugging and executing programs.
Level 3: Strategic Thinking	ACP 2.2 Examine software development processes.
Level 2: Skill/concept	ACP 2.3 Implement the syntactical components of a program.

INDICATOR # ACP 3 Properly use language-fundamental commands and operations independently.

Level 3: Strategic Thinking	ACP 3.1 Demonstrate the ability to use basic elements of a specific language.
Level 3: Strategic Thinking	ACP 3.2 Employ basic arithmetic expressions in programs.
Level 3: Strategic Thinking	ACP 3.3 Demonstrate the ability to use data types in programs.
Level 3: Strategic Thinking	ACP 3.4 Incorporate functions/methods.

INDICATOR # ACP 4. Apply control structures.

Level 3: Strategic Thinking	ACP 4.1 Demonstrate the ability to use relational and logical operators in programs.
Level 4: Extended Thinking	ACP 4.2 Investigate conditional statements.
Level 4: Extended Thinking	ACP 4.3 Implement loops in programs.

Computer Programming I & II Current Standards

Level 2: Skill/Concept	CP 5.3 Demonstrate job skills for programming industries.
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INDICATOR # CP 6. Integrate arrays.

Level 2: Skill/Concept	CP 6.1 Demonstrate the ability to use arrays in programs.
Level 3: Strategic Thinking	CP 6.2 Demonstrate the ability to use strings in programs.

INDICATOR # CP 7. Implement object-oriented programming techniques.

Level 3: Strategic Thinking	CP 7.1 Demonstrate the ability to use existing classes.
Level 4: Extended Thinking	CP 7.2 Demonstrate the ability to create user-defined classes.
Level 4: Extended Thinking	CP 7.3 Demonstrate proper design principles with classes.

Advanced Computer Programming Proposed Standards

INDICATOR # ACP 5. Integrate arrays.

Level 2: Skill/Concept	ACP 5.1 Demonstrate the ability to use arrays in programs.
Level 3: Strategic Thinking	ACP 5.2 Demonstrate the ability to use strings in programs.

INDICATOR # ACP 6. Implement object-oriented programming techniques.

Level 3: Strategic Thinking	ACP 6.1 Demonstrate the ability to use existing classes.
Level 4: Extended Thinking	ACP 6.2 Demonstrate the ability to create user-defined classes.
Level 4: Extended Thinking	ACP 6.3 Demonstrate proper design principles with classes.

Network Technologies Current Standards

INDICATOR # NT 1. Demonstrate knowledge of designing and implementing a networking system.	
Level 1: Recall	NT 1.1 Demonstrate knowledge of basic network communications.
Level 1: Recall	NT 1.2 Demonstrate knowledge of basic network classifications and topologies.
Level 1: Recall	NT 1.3 Demonstrate knowledge of common network hardware.
Level 4: Extended Thinking	NT 1.4 Apply knowledge of local area network (LAN) physical media.
Level 1: Recall	NT 1.5 Demonstrate knowledge of communication standards for networks.
Level 4: Extended Thinking	NT 1.6 Plan, design, and create network architecture.
Level 2: Skill/Concept	NT 1.7 Demonstrate knowledge of Network Operating Systems (NOS).

INDICATOR # NT 2. Perform network operating system installation and configuration.	
Level 2: Skill/Concept	NT 2.1 Install a network operating system.
Level 2: Skill/Concept	NT 2.2 Configure a network operating system.
Level 4: Extended Thinking	NT 2.3 Troubleshoot and resolve network problems.

INDICATOR # NT 3. Apply knowledge of network security systems.	
Level 3: Strategic Thinking	NT 3.1 Apply proper procedures for securing a network.
Level 2: Skill/Concept	NT 3.2 Demonstrate penetration testing and ethical hacking.

INDICATOR # NT 4. Demonstrate knowledge of common help desk tools, resources and techniques.	
Level 2: Skill/Concept	NT 4.1 Use proper documentation and incident reporting.
Level 3: Strategic Thinking	NT 4.2 Incorporate customer service skills.

INDICATOR # NT 5. Explore Careers in Network Technology.	
Level 1: Recall	NT 5.1 Identify skills, interests, and abilities related to network technology.

Network Technologies Proposed Standards - NO CHANGES

INDICATOR # NT 1. Demonstrate knowledge of designing and implementing a networking system.	
Level 1: Recall	NT 1.1 Demonstrate knowledge of basic network communications.
Level 1: Recall	NT 1.2 Demonstrate knowledge of basic network classifications and topologies.
Level 1: Recall	NT 1.3 Demonstrate knowledge of common network hardware.
Level 4: Extended Thinking	NT 1.4 Apply knowledge of local area network (LAN) physical media.
Level 1: Recall	NT 1.5 Demonstrate knowledge of communication standards for networks.
Level 4: Extended Thinking	NT 1.6 Plan, design, and create network architecture.
Level 2: Skill/Concept	NT 1.7 Demonstrate knowledge of Network Operating Systems (NOS).

INDICATOR # NT 2. Perform network operating system installation and configuration.	
Level 2: Skill/Concept	NT 2.1 Install a network operating system.
Level 2: Skill/Concept	NT 2.2 Configure a network operating system.
Level 4: Extended Thinking	NT 2.3 Troubleshoot and resolve network problems.

INDICATOR # NT 3. Apply knowledge of network security systems.	
Level 3: Strategic Thinking	NT 3.1 Apply proper procedures for securing a network.
Level 2: Skill/Concept	NT 3.2 Demonstrate penetration testing and ethical hacking.

INDICATOR # NT 4. Demonstrate knowledge of common help desk tools, resources and techniques.	
Level 2: Skill/Concept	NT 4.1 Use proper documentation and incident reporting.
Level 3: Strategic Thinking	NT 4.2 Incorporate customer service skills.

INDICATOR # NT 5. Explore Careers in Network Technology.	
Level 1: Recall	NT 5.1 Identify skills, interests, and abilities related to network technology.

**Network Technologies
Current Standards**

Level 2: Skill/Concept	NT 5.2 Compare personal interest survey results with network technology occupations.
Level 3: Strategic Thinking	NT 5.3 Research labor market information for network technology.
Level 2: Skill/Concept	NT 5.4 Demonstrate necessary job skills needed for information technology industries.

INDICATOR # NT 6. Maintain a safe and environmentally conscious environment.

Level 2: Skill/Concept	NT 6.1 Determine safe working practices to avoid or eliminate physical and electrical hazards.
Level 1: Recall	NT 6.2 Research environmental considerations when disposing of material.

**Network Technologies
Proposed Standards - NO CHANGES**

Level 2: Skill/Concept	NT 5.2 Compare personal interest survey results with network technology occupations.
Level 3: Strategic Thinking	NT 5.3 Research labor market information for network technology.
Level 2: Skill/Concept	NT 5.4 Demonstrate necessary job skills needed for information technology industries.

INDICATOR # NT 6. Maintain a safe and environmentally conscious environment.

Level 2: Skill/Concept	NT 6.1 Determine safe working practices to avoid or eliminate physical and electrical hazards.
Level 1: Recall	NT 6.2 Research environmental considerations when disposing of material.

No Previous Course

Cyber Security Proposed Standards

INDICATOR # CS 1 Explore to Cybersecurity Concepts

Level 1: Recall	CS 1.1 Define the importance of the cybersecurity industry.
Level 1: Recall	CS 1.2 Identify the role cybersecurity plays in personal usage.
Level 1: Recall	CS 1.3 Identify the role cybersecurity plays in industry usage.

INDICATOR # CS 2 Establishing Trust in Cybersecurity

Level 3: Strategic Thinking	2.1 Investigate the Confidentiality Integrity Availability (CIA) Triad – Security Models.
Level 3: Strategic Thinking	2.2 Compare and contrast usability and security.

INDICATOR # CS 3 Explore Data security and security systems

Level 3: Strategic Thinking	CS 3.1 Investigate encryption and encryption types.
Level 3: Strategic Thinking	CS 3.2 Investigate how businesses utilize security systems.
Level 3: Strategic Thinking	CS 3.3 Compare and contrast public versus private wifi.
Level 3: Strategic Thinking	CS 3.4 Explore processes that maintain integrity of data.
Level 3: Strategic Thinking	CS 3.5 Investigate data breaches and its impact on business and customers.

INDICATOR # CS 4 Examine risks, vulnerabilities, threats, and implications

Level 3: Strategic Thinking	CS 4.1 Differentiate between threats, vulnerabilities, and attacks.
Level 2: Skill/Concept	CS 4.2 Utilize adversarial thinking.
Level 2: Skill/Concept	CS 4.3 Describe common security related software vulnerabilities.
Level 3: Strategic Thinking	CS 4.4 Explore social engineering techniques related to cybersecurity.

INDICATOR # CS 5 Examine legal and ethical issues related to cybersecurity

Level 3: Strategic Thinking	CS 5.1 Compare and contrast ethical versus non-ethical hacking.
Level 2: Skill/Concept	CS 5.2 Understand confidentiality and the role it plays in cybersecurity.
Level 1: Recall	CS 5.3 Discuss the impact of unethical and illegal hacking on quality of life.

No Previous Course

Cyber Security Proposed Standards

Level 4: Extended Thinking	CS 5.4 Evaluate how the role of value and ethics impacts laws and policy decisions.
Level 4: Extended Thinking	CS 5.5 Evaluate proprietary information and protections.

INDICATOR # CS 6 Explore careers in cybersecurity

Level 1: Recall	CS 6.1 Identify personal interests and abilities related to cybersecurity careers.
Level 3: Strategic Thinking	CS 6.2 Investigate career opportunities, trends, and requirements related to cybersecurity careers.
Level 1: Recall	CS 6.3 Identify skills needed for cybersecurity careers.

No Previous Course

**Computer Science Essentials
Proposed Standards**

INDICATOR CSE #1 Explore computer systems and their functions.

Level 1: Recall	CSE 1.1 Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.
Level 2: Skill/Concept	CSE 1.2 Compare levels of abstraction and interactions between application software, system software, and
Level 1: Recall	CSE 1.3 Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.

INDICATOR CSE #2 Explore networks and the internet.

Level 1: Recall	CSE 2.1 Identify network components by describing the relationship between routers, switches, servers, topology, and addressing.
Level 2: Skill/Concept	CSE 2.2 Give examples to illustrate how sensitive data can be affected by malware and other attacks.
Level 2: Skill/Concept	CSE 2.3 Identify security measures to address various scenarios based on the CIA Triad (confidentiality, integrity, and availability).
Level 2: Skill/Concept	CSE 2.4 Compare various security measures, considering tradeoffs between the usability and security of a computing system.

INDICATOR CSE #3 Explore data and analysis.

Level 2: Skill/Concept	CSE 3.1 Translate between different bit representations of real-world phenomena, such as characters, numbers, and
Level 2: Skill/Concept	CSE 3.2 Evaluate the tradeoffs in how data elements are organized and where data is stored.

INDICATOR CSE #4 Identify and define algorithms and programming and how they are used in computing.

Level 2: Skill/Concept	CSE 4.1 Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.
Level 1: Recall	CSE 4.2 Investigate specific control structures and tradeoffs involving implementation, readability, and program performance.

No Previous Course

**Computer Science Essentials
Proposed Standards**

Level 3: Strategic Thinking	CSE 4.3 Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.
Level 2: Skill/Concept	CSE 4.4 Understand the purpose of gathering feedback when creating software.
Level 1: Recall	CSE 4.5 Examine software licenses, including copyright, freeware, and open-source licensing.
Level 3: Strategic Thinking	CSE 4.6 Evaluate computer programs for intended

INDICATOR CSE #5 Explore impacts of computing.

Level 1: Recall	CSE 5.1 Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
Level 2: Skill/Concept	CSE 5.2. Examine and identify bias and equity deficits in existing computer programs.
Level 2: Skill/Concept	CSE 5.3 Identify and use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.
Level 2: Skill/Concept	CSE 5.4 Explore privacy concerns and intellectual property laws related to computing.
Level 1: Recall	CSE 5.5 Explore careers in computer science.

No Previous Course

**Computer Science Principles
Proposed Standards**

INDICATOR # CSP 1 Investigate computer systems and their functions.

Level 2: Skill/Concept	CSP 1.1 Compare and contrast how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.
Level 3: Strategic Thinking	CSP 1.2 Use concepts to compare levels of abstraction and interactions between application software, system software, and hardware layers.
Level 2: Skill/Concept	CSP 1.3 Develop and implement guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.

INDICATOR # CSP 2 Investigate networks and the internet.

Level 2: Skill/Concept	CSP 2.1 Describe the issues that impact network functionality (e.g., bandwidth, load, delay, topology).
Level 2: Skill/Concept	CSP 2.2 Give examples to illustrate how sensitive data can be affected by malware and other attacks.
Level 3: Strategic Thinking	CSP 2.3 Recommend security measures to address various scenarios based on the CIA Triad (confidentiality, integrity, and availability).
Level 3: Strategic Thinking	CSP 2.4 Recommend various security measures, considering tradeoffs between the usability and security of a computing system.

INDICATOR # CSP 3 Investigate data and analysis.

Level 3: Strategic Thinking	CSP 3.1 Translate between different bit representations of real-world phenomena, such as characters, numbers, and
Level 3: Strategic Thinking	CSP 3.2 Evaluate the tradeoffs in how data elements are organized and where data is stored.
Level 4: Extended Thinking	CSP 3.3 Select and use data collection tools and techniques to generate data sets that support a claim or communicate information.

INDICATOR # CSP 4 Evaluate and construct algorithms and programming and how they are used in computing.

Level 3: Strategic Thinking	CSP 4.1 Use and evaluate algorithms in terms of their efficiency, correctness, and clarity.
Level 2: Skill/Concept	CSP 4.2 Compare and contrast fundamental data structures and their uses.

No Previous Course

**Computer Science Principles
Proposed Standards**

Level 3: Strategic Thinking	CSP 4.3 Recommend specific control structures and identify tradeoffs involving implementation, readability, and program performance.
Level 3: Strategic Thinking	CSP 4.4 Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.
Level 4: Extended Thinking	CSP 4.5 Construct solutions to problems based on user
Level 3: Strategic Thinking	CSP 4.6 Plan and develop programs for broad audiences using a software life cycle process.
Level 2: Skill/Concept	CSP 4.7 Investigate and compare multiple programming languages and discuss how their features make them suitable for solving different types of problems.

INDICATOR # CSP 5 Investigate impacts of computing.

Level 2: Skill/Concept	CSP 5.1 Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
Level 3: Strategic Thinking	CSP 5.2 Identify and critique bias, equity, access, and influence in existing computer programs.
Level 2: Skill/Concept	CSP 5.3 Identify and use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.
Level 2: Skill/Concept	CSP 5.4 Debate laws and regulations that impact the development and use of software.
Level 1: Recall	CSP 5.5 Explore careers in computer science.