Iowa CTE

Information Solutions Service Area: Middle School (5-8)

Universal CTE Middle School Standards

1 **Employability Skills: (overarching comprehensive standard statement)** 1

1 Demonstrate transferable knowledge and skills like attitudes, teamwork, leadership in the learning environment. 1.1

2 Create an environment that encourages and respects the ideas, perspectives, and contributions of all group members. 1.2

3 Evaluate effective conflict prevention techniques. 1.3

4 Apply the roles of decision making and problem solving in reducing and managing conflict. 1.4

5 Demonstrate effective responses to bullying harassment. 1.5

2 **Career Exploration** 2

1 Summarize career pathways within industries; including education needed, training requirements, knowledge, skills, attitudes, and available opportunities. 2.1

3 **Develop Effective Safety Practices** 3

1 Demonstrate safety and sanitation procedures for a clean and safe environment. 3.1

2 Students apply safety practices in the learning environment. 3.2

4 **Ethics in the Workplace** 4

1 Model ethical behavior and sound decision-making principles in the learning environment. 4.1

2 Examine how the industry contributes to or influences society. 4.2

5 Leadership & Career and Technical Student Organizations (CTSOs) 5

1. Demonstrate leadership skills and abilities in school and community settings through participation in civic and community leadership and teamwork opportunities. Exhibit traits such as compassion, service, listening, coaching, developing others, team development, and understanding and appreciating others. 5.1
2. Explore how Iowa's career and technical student organizations (CTSOs) are integral components of career and technical education courses through compounding leadership experiences and professional skill development, service learning opportunities in the school and community and experiential work- and project-based learning and competitive events. 5.2

Information Solutions Service Area Standards

1 Understand ethics and safety when using technology 1

1. Explore and recognize the rights, responsibilities and opportunities of living, learning and working in a digital landscape. 1.1
    1. Compare differences between ethical and unethical online and digital use behavior. 1.1.1
    2. Identify the consequences of unethical uses of technology. 1.1.2
    3. Explain how digital actions are never fully erasable. 1.1.3
2. Demonstrate and advocate for positive, safe, legal and ethical habits when using technology. 1.2
    1. Recognize and manage digital identities. 1.2.1
    2. Lead discussion about media literacy and online safety. 1.2.2
    3. Explain the positive and negative impact the use of technology can have on personal, professional and community relationships. 1.2.3
3. Demonstrate an understanding of intellectual property. 1.3
    1. Correctly utilize and cite copyrighted works in digital tasks. 1.3.1
    2. Identify basics of copyright, permission and fair use. 1.3.2
4. Demonstrate an understanding of personal data and how to keep it private and secure. 1.4
    1. Discuss when to share personal information. 1.4.1
    2. Identify strategies for creating and protecting passwords. 1.4.2
    3. Identify terminology such as encryption, HTTPS, cookies and computer viruses. 1.4.3
    4. Evaluate digital tools to determine safety, privacy policy and appropriate usage. 1.4.4
    5. Explore limitations of data management and data-collection technologies. 1.4.5

2 **Understand different technology devices and the support they provide to produce a product** 2

1 Demonstrate management of individual and family resources such as food, clothing, shelter, health care, recreation, transportation, time and human capital. 2.1

1 Apply time management, organizational and process skills to prioritize tasks and achieve goals. 2.1.1

2 Analyze how individuals and families make choices to satisfy needs and wants. 2.1.2

3 Compare and contrast the functions, features and limitations of similar technologies. 2.1.3

2 Define basic terminology associated to various devices. 2.2

1 Research current and emerging technologies. 2.2.1

2 Describe how people from different disciplines combined their skills in the design and production of new technologies. 2.2.2

3 Analyze potential impacts on personal, community and work settings. 2.2.3

3 Utilize a variety of devices to support planning, implementing and reflecting upon a defined task. 2.3

1 Develop criteria for selecting digital tools and resources to accomplish a defined task. 2.3.1

2 Apply knowledge and skills from existing technologies and devices to successfully use new technologies. 2.3.2

4 Use logic to solve problems to demonstrate trouble-shooting skills when encountering technology issues. 2.4

1 Identify successful troubleshooting strategies for minor hardware and software issues and problems. 2.4.1

3 **Use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions** 3

1 Analyze and select digital tools to support a design process. 3.1

1 Identify stages of the design process and appropriately match digital tools to each stage. 3.1.1

2 Demonstrate skill with design tools to develop and/or revise a model. 3.1.2

2 Explore design processes and employ to generate ideas, create innovative products or solve authentic problems. 3.2

1 Investigate and illustrate complex ideas or processes using a digital tool to develop thinking. 3.2.1

2 Utilize digital tools to brainstorm and develop collaborative solutions to a shared problem. 3.2.2

3 Develop, test and revise prototypes utilizing a cyclical process of trial and error and reflecting on problems or setbacks as opportunities for improvement. 3.3

1 Utilize criteria developed with guidance to evaluate a product. 3.3.1

2 Create design prototypes to address a defined task or challenge. 3.3.2

3 Demonstrate understanding of collecting and using data to refine models. 3.3.3

4 **Develop algorithmic thinking and introductory programming procedures** 4

1 Design and illustrate algorithms to solve problems. 4.1

1 Utilize pseudocode to decompose or design algorithms and illustrate flow of execution. 4.1.1

2 Construct solutions to problems using components such as procedures, modules and or objects. 4.1.2

2 Demonstrate written communication skills through documentation and annotation. 4.2

1 Create naming conventions for variables and functions that support the design and problem-solving process. 4.2.1

2 Annotate works by adding descriptors and comments for future use and communication. 4.2.2

3 Design and iteratively develop programs that combine control structures. 4.3

1 Define and explore common control structures. 4.3.1

2 Identify appropriate applications for control structures. 4.3.2

3 Develop simple programs using control structures such as loops or conditional logic statements. 4.3.3

4 Create procedures with or without parameters. 4.3.4

5 Design software that guides system input and output. 4.3.5

4 Demonstrate understanding of program reuse and application. 4.4

1 Write original programs that incorporate someone else's code and/or media and give proper attribution. 4.4.1

2 Identify and responsibly repurpose existing resources to creatively solve new problems. 4.4.

5 **Understand communication concepts and strategies to interact and collaborate with others** 5

1 Demonstrate the ability to work as a team member. 5.1

1 Define conflict resolution strategies in a team setting. 5.1.1

2 Understand cultural differences in communication. 5.1.2

2 Demonstrate ability to communicate ideas clearly using various digital tools. 5.2

1 Integrate multimedia and visual displays into presentations to clarify information and strengthen claims and evidence. 5.2.1

3 Apply the elements of successful project management. 5.3

1 Demonstrate ability to develop and manage a project to completion. 5.3.1