Iowa CTE

Applied Science, Technology, Engineering and Manufacturing 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

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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

Applied Science, Technology, Engineering and Manufacturing Service Area Standards

1 Practice safety and use tools 1

1. Describe general lab safety rules and procedures. 1.1.1
2. Comply with lab dress standards and use of personal protective equipment (PPE) during lab activities. 1.1.2
3. Identify hand tools/power tools and their appropriate usage. 1.1.

2 Understand measurement systems 2

1. Operate measuring tools to determine various measurement requirements of a prescribed activity. 2.1.1
2. Differentiate and convert between the U.S. customary system and metric system of measurement. 2.1.2

3 Understand the engineering design process 3

1. Identify and solve a problem using the engineering design process. 3.1.1

4 Understand power systems 4

1. Identify, build, and troubleshoot basic power systems: electrical, fossil fuel, pneumatic, hydraulic, etc. 4.1.1

5 Understand energy sources 5

1. Understand nonrenewable energy sources and their effect on the environment. 5.1.1
2. Understand different types of renewable energy sources and their benefits. 5.1.2