



Indiana Content Standards for Educators

CAREER AND TECHNICAL EDUCATION—TRADE AND INDUSTRIAL EDUCATION

Trade and industrial education teachers are expected to have a broad and comprehensive understanding of the knowledge and skills needed for this educator license, and to use that knowledge to help students prepare for the challenges and opportunities of the twenty-first century. This requires the ability to identify, comprehend, analyze, synthesize, and evaluate the basic principles, fundamental concepts, and essential content defined in these standards, and to apply that knowledge to the tasks of planning and delivering effective instruction and assessment.

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Career and Technical Education—Trade and Industrial Education Educator Standards

Standard 1: Workplace Skills Common to All Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of workplace skills that are common to all trade and industrial occupations.

Standard 2: Tools, Equipment, and Materials in Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of the tools, equipment, and materials commonly used in the specific trades and industries in which teachers are certified.

Standard 3: Health and Safety in Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of health and safety requirements and practices in the specific trades and industries in which teachers are certified.

Standard 4: Computers and Information Technology in Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of the use of computers and information technology in the specific trades and industries in which teachers are certified.

Standard 5: Core Knowledge and Skills for Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of core knowledge and skills for the specific trades and industries in which teachers are certified.

Standard 6: Careers in Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of the characteristics and requirements of various trade and industrial careers.

Standard 7: Core Knowledge and Skills for Trade and Industrial Education Teachers

Trade and industrial education teachers have a broad and comprehensive understanding of core knowledge and skills for trade and industrial education teachers.

Standard 8: Trade and Industrial Education Instruction and Assessment

Trade and industrial education teachers have a broad and comprehensive understanding of instruction and assessment in career and technical education and trade and industrial education.

Career and Technical Education—Trade and Industrial Education Educator Standards

Standard 1: Workplace Skills Common to All Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of workplace skills that are common to all trade and industrial occupations, including:

- 1.1** critical-thinking, decision-making, and problem-solving skills
- 1.2** strategies and skills for planning and allocating resources
- 1.3** basic interpersonal, communication, and teamwork skills needed in the workplace
- 1.4** strategies for implementing quality assurance measures
- 1.5** strategies and procedures for collecting, analyzing, and using data
- 1.6** skills for locating, reading, interpreting, and evaluating information, including information in technical publications and on the Internet
- 1.7** procedures for accessing and navigating the Internet and for discriminating between reliable and unreliable information found on the Internet
- 1.8** application of scientific principles and basic mathematical, reading, and writing skills in trade and industrial occupations

Standard 2: Tools, Equipment, and Materials in Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of the tools, equipment, and materials commonly used in the specific trades and industries in which teachers are certified, including:

- 2.1** types, characteristics, and operation of tools and equipment commonly used in specific trades and industries
- 2.2** selection of appropriate tools and equipment, including new and innovative tools and equipment, to accomplish tasks commonly encountered in specific trades and industries
- 2.3** procedures for maintaining and troubleshooting tools and equipment commonly used in specific trades and industries
- 2.4** types and characteristics of materials commonly used in specific trades and industries
- 2.5** selection of appropriate materials for common applications in specific trades and industries

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Standard 3: Health and Safety in Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of health and safety requirements and practices in the specific trades and industries in which teachers are certified, including:

- 3.1** workplace dangers and hazards commonly encountered in specific trades and industries
- 3.2** safety precautions and practices related to the use of tools and equipment in specific trades and industries
- 3.3** strategies for maintaining a healthy and safe work environment in specific trades and industries
- 3.4** health and safety precautions and procedures related to storage, handling, and disposal of hazardous materials used in specific trades and industries
- 3.5** sources of health- and safety-related information for specific trades and industries
- 3.6** industry standards and government agencies, laws, and regulations related to health and safety in specific trades and industries

Standard 4: Computers and Information Technology in Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of the use of computers and information technology in the specific trades and industries in which teachers are certified, including:

- 4.1** basic terminology related to computers and information technology used in specific trades and industries
- 4.2** types and characteristics of computer hardware, software, and peripherals used in specific trades and industries
- 4.3** processes and procedures related to operating and maintaining computer systems used in specific trades and industries
- 4.4** basic skills for inputting, accessing, and managing data in specific trades and industries

Standard 5: Core Knowledge and Skills for Specific Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of core knowledge and skills for the specific trades and industries in which teachers are certified, including:

- 5.1** technology, methods, processes, and procedures used in specific trades and industries
- 5.2** strategies for maintaining an up-to-date knowledge base about technology, methods, processes, and procedures used in specific trades and industries

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Standard 6: Careers in Trade and Industrial Occupations

Trade and industrial education teachers have a broad and comprehensive understanding of the characteristics and requirements of various trade and industrial careers, including:

- 6.1** personal characteristics and skills necessary for success in the workplace
- 6.2** types and characteristics of career opportunities in trades and industries
- 6.3** skills, levels of education, experience, and credentials required for employment in various trades and industries
- 6.4** strategies for career development in various trades and industries, including establishing personal goals, identifying potential careers, and developing career plans
- 6.5** strategies and skills for job seeking, including identifying job opportunities, writing résumés, completing applications, and participating in interviews
- 6.6** strategies and skills for lifelong learning, including identifying resources and professional development opportunities for keeping current in various trades and industries

Standard 7: Core Knowledge and Skills for Trade and Industrial Education Teachers

Trade and industrial education teachers have a broad and comprehensive understanding of core knowledge and skills for trade and industrial education teachers, including:

- 7.1** the structure and delivery of career and technical education in the United States and Indiana and state and federal laws and regulations pertaining to career and technical education
- 7.2** Common Core Standards for English Language Arts and Mathematics and their application in trade and industrial education settings
- 7.3** important events and developments in the history of career and technical education and trade and industrial education
- 7.4** social, political, legal, and ethical issues in trade and industrial education and current trends in business, industry, crafts, and trades
- 7.5** principles and practices for ensuring the safety of students in trade and industrial education classrooms, laboratories, and school-to-work experiences
- 7.6** strategies and techniques for helping students analyze career pathways and carry out self-assessment, career exploration, and career planning and for encouraging students to be lifelong learners
- 7.7** strategies and procedures for coordinating and supervising students' school-to-work experiences and for assessing student learning during their school-to-work experiences
- 7.8** missions, goals, and organizational structures of career and technical student organizations; roles and responsibilities of faculty advisors to these organizations; and strategies for fostering leadership skills in students
- 7.9** outreach in career and technical education and trade and industrial education, including strategies for working with local advisory committees

Career and Technical Education—Trade and Industrial Education Educator Standards

Standard 8: Trade and Industrial Education Instruction and Assessment

Trade and industrial education teachers have a broad and comprehensive understanding of instruction and assessment in career and technical education and trade and industrial education, including:

- 8.1** Indiana Academic Standards for Trade and Industrial Education
- 8.2** the NAITTE Standards of Quality for the Preparation and Certification of Trade and Industrial (T&I) Education Teachers and the ISTE National Educational Technology Standards
- 8.3** instructional strategies and resources for integrating instruction that promotes student achievement of Common Core Standards for English Language Arts and Mathematics
- 8.4** instructional strategies and resources for promoting students' understanding of concepts and development of skills related to trade and industrial education
- 8.5** strategies and skills for planning, designing, and delivering instruction in trade and industrial education, including the use of techniques and approaches that meet the needs of diverse learners
- 8.6** instructional strategies and resources, including inquiry-based instruction, for promoting student learning and fostering the development of critical-thinking, higher-order thinking, problem-solving, and performance skills in trade and industrial education
- 8.7** strategies and skills for creating a productive learning environment using knowledge of student behavior, organizational skills, and classroom management skills
- 8.8** communication methods that promote student learning and foster active inquiry, interaction, and collaboration in the trade and industrial education classroom
- 8.9** strategies and skills for selecting, adapting, and using technological resources to enhance teaching and learning
- 8.10** strategies for promoting students' skills and knowledge required for future success in the trade and industrial workplace and in postsecondary education
- 8.11** strategies and skills for effectively assessing students' understanding and mastery of essential concepts and skills in trade and industrial education

Selected Bibliography of Standards and Sources Related to Career and Technical Education—Trade and Industrial Education

State and National Standards and Curriculum Frameworks

1. Indiana Department of Education. (2008). *Indiana academic standards for trade and industrial education*. <http://dc.doe.in.gov/Standards/AcademicStandards/PrintLibrary/tradeindustrialed.shtml>
2. National Association of Industrial and Technical Teacher Educators (NAITTE). (1995). *Standards of quality for the preparation and certification of trade and industrial (T&I) education teachers*.
3. International Society for Technology in Education (ISTE). (2008). *National educational technology standards for teachers*. http://www.iste.org/Libraries/PDFs/NETS_for_Teachers_2008_EN.sflb.ashx

Sources on Career and Technical Education—Trade and Industrial Education Content

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14. Grant, H. B., & Terry, K. J. (2008). *Law enforcement in the 21st century* (2nd Ed.). Upper Saddle River, NJ: Prentice Hall.
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16. Hacker, M., & Burghardt, D. (2004). *Technology education: Learning by design*. Upper Saddle River, NJ: Prentice Hall.

Selected Bibliography of Standards and Sources Related to Career and Technical Education—Trade and Industrial Education

Sources on Student Learning and Pedagogical Methodology

17. National Research Center for Career and Technical Education. (2010). *Capitalizing on context: Curriculum integration in career and technical education*. Louisville, KY: National Research Center for Career and Technical Education, University of Louisville.
18. National Research Center for Career and Technical Education. (2010). *Professional development for secondary career and technical education: Implications for change*. Louisville, KY: National Research Center for Career and Technical Education, University of Louisville.
19. Rehm, M. L. (2008). Career and technical education teachers' perceptions of culturally diverse classes: Rewards, difficulties, and useful teaching strategies. *Career and Technical Education Research, 33*(1), 45–64.
20. Scott, J. L., & Sarkees-Wircenski, M. (2008). *Overview of career and technical education* (4th ed.). Orland Park, IL: American Technical.
21. Ausburn, L. J., & Brown, D. (2006). Learning strategy patterns and instructional preferences of career and technical education students. *Journal of Industrial Teacher Education, 43*(4), 6–39.
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23. McCaslin, N. L., & Parks, D. (2002). *Teacher education in career and technical education: Background and policy implications for the new millennium*. Columbus, OH: National Dissemination Center for Career and Technical Education.

Alignment of Educator Standards with State and National Standards

Indiana Educator Standards for Career and Technical Education— Trade and Industrial Education	Indiana Academic Standards for Trade and Industrial Education	NAITTE Standards of Quality for the Preparation and Certification of Trade and Industrial (T&I) Education Teachers	ISTE National Educational Technology Standards
<p><u>Standard 1: Workplace Skills Common to All Trade and Industrial Occupations</u></p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of workplace skills that are common to all trade and industrial occupations.</p>	<p>1.1–1.2, 1.5–1.6, 1.8, 1.9–1.12</p>		
<p><u>Standard 2: Tools, Equipment, and Materials in Specific Trade and Industrial Occupations</u></p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of the tools, equipment, and materials commonly used in the specific trades and industries in which teachers are certified.</p>	<p>1.1, 1.7</p>	<p>Laboratory Organization and Management: 2, 5</p>	
<p><u>Standard 3: Health and Safety in Specific Trade and Industrial Occupations</u></p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of health and safety requirements and practices in the specific trades and industries in which teachers are certified.</p>	<p>1.6–1.7, 3.14</p>	<p>Laboratory Organization and Management: 1–3, 5</p>	

Alignment of Educator Standards with State and National Standards

Indiana Educator Standards for Career and Technical Education— Trade and Industrial Education	Indiana Academic Standards for Trade and Industrial Education	NAITTE Standards of Quality for the Preparation and Certification of Trade and Industrial (T&I) Education Teachers	ISTE National Educational Technology Standards
<p><u>Standard 4: Computers and Information Technology in Specific Trade and Industrial Occupations</u></p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of the use of computers and information technology in the specific trades and industries in which teachers are certified.</p>	1.5		
<p><u>Standard 5: Core Knowledge and Skills for Specific Trade and Industrial Occupations</u></p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of core knowledge and skills for the specific trades and industries in which teachers are certified.</p>	1.5, 1.6, 3.1–3.14	Laboratory Organization and Management: 1–3, 5	
<p><u>Standard 6: Careers in Trade and Industrial Occupations</u></p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of the characteristics and requirements of various trade and industrial careers.</p>	2.1–2.3, 2.5, 2.7		

Alignment of Educator Standards with State and National Standards

Indiana Educator Standards for Career and Technical Education— Trade and Industrial Education	Indiana Academic Standards for Trade and Industrial Education	NAITTE Standards of Quality for the Preparation and Certification of Trade and Industrial (T&I) Education Teachers	ISTE National Educational Technology Standards
<p>Standard 7: Core Knowledge and Skills for Trade and Industrial Education Teachers</p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of core knowledge and skills for trade and industrial education teachers.</p>	1.3, 1.13–1.14, 2.6	<p>Linkages with Stakeholder Groups: 1,2</p> <p>Projection of a Positive Public Status and Image: 1–7</p>	5a–5d
<p>Standard 8: Trade and Industrial Education Instruction and Assessment</p> <p>Trade and industrial education teachers have a broad and comprehensive understanding of instruction and assessment in career and technical education and trade and industrial education.</p>	1.4, 2.4–2.5	<p>Instruction: 1–6</p> <p>Curriculum: 1–8</p> <p>Special Populations of Students: 1–7</p> <p>Laboratory Organization and Management: 1–7</p>	1a–1d; 2a–2d; 3a–3d; 4a–4d