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Dear Delaware Educator,

The Delaware Department of Education is pleased to provide you with this Career and Technical Education Teacher Resource Guide for Delaware Recommended Curriculum Development. The material in this guide has been developed by many of your colleagues in schools and districts across the state, working in collaboration with Delaware Department of Education staff and nationally known consultants.

Individual sections of this guide contain materials intended to clarify the Delaware Career and Technical Education Standards, Performance Elements, Performance Indicators, and Crosswalks of Academic and Career and Technical Education Standards. This work has been completed in AgriScience Education; Business, Finance and Marketing Education; Family and Consumer Sciences Education; and Technology Education. As additional materials become available, you will receive electronic versions you can download for the Guide.

Materials in this guide and related curriculum resources will also be found on the Delaware Department of Education website. Links currently in development and scheduled for completion in the coming year will provide teachers and administrators with additional web-based resources related to the Career and Technical Education Teacher Resource Guide for Delaware Recommended Curriculum Development.

I encourage you to review this guide and refer to it as you develop and plan curriculum and instruction. Your comments and suggestions on this Career and Technical Education Teacher Resource Guide for Delaware Recommended Curriculum Development would be appreciated.

Sincerely,

A handwritten signature in black ink that reads "Valerie A. Woodruff".

Valerie A. Woodruff  
Secretary of Education

# Delaware Career and Technical Education Standards

## Teacher Resource Guide for Recommended Curriculum Development

This material is also available on the Delaware Department of Education's website:  
[www.doe.k12.de.us/programs/ci/](http://www.doe.k12.de.us/programs/ci/) as a downloadable document.



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Career and Technical Education and School Climate Workgroup**

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# **Components of the *Career and Technical Education Standards Teacher Resource Guide for Recommended Curriculum Development***

The *Career and Technical Education Standards Teacher Resource Guide for Recommended Curriculum Development* presents the content standards, career pathways, and proficiency expectations for the four career and technical content areas, AgriScience; Business, Finance and Marketing; Family and Consumer Sciences; and Technology Education.

Within each content area, a curricula crosswalk is presented. The curricula crosswalk is a matrix demonstrating the relationship between high quality career and technical education and academic education. Aligning career and technical education and academic education prepares students for work and/or postsecondary education.

**AgriScience** Education Standards and Teacher Resource Guide for Recommended Curriculum Development includes standards and proficiency expectations in the areas of:

- Animal Science
- Biotechnology
- Food Science
- Natural Resources and Environmental Science
- Plant and Horticultural Science
- Power, Structural, and Technical Systems

**Business, Finance and Marketing** Education Standards and Teacher Resource Guide for Recommended Curriculum Development includes standards and proficiency expectations in the areas of:

- Business, Finance and Marketing Core
- Accounting
- Administrative Services
- Banking
- Business and Corporate Management
- Business Information Technology
- Marketing Communications
- Marketing Management

**Family and Consumer Sciences** Education Standards and Teacher Resource Guide for Recommended Curriculum Development includes standards and proficiency expectations in the areas of:

- Early Childhood Education
- Human Services

- Nutrition and Culinary Arts
  - Nutrition and Wellness
  - Food Safety
  - Food and Culinary Arts
- Careers
- Interpersonal Relations
- Resource Management

**Technology** Education Standards and Teacher Resource Guide for Recommended Curriculum Development includes standards and proficiency expectations in the areas of:

- The Nature, Impacts, and Evolution of Technology
- Technology Education as an Interdisciplinary and Technological Link
- The Use and Management of Technological Resources and Systems
- The Design Process and The Systems Model
- Technological Concepts
- Active Participation in the Technology Student Association (TSA)
- The Design Process
- Agricultural, Bio-related, and Medical Technologies
- Information and Communication Technologies
- Drafting, Design, and CADD
- Energy, Power, and Transportation Technologies
- Construction and Manufacturing Technologies

## **Purpose of the Delaware Content Standards and Recommended Curriculum**

The unifying objective of the State of Delaware Curriculum Framework Content Standards in AgriScience Education; Business, Finance and Marketing Education; Family and Consumer Sciences Education; and Technology Education is the transition of young people into informed resourceful workers and lifelong learners who participate actively and successfully in 21<sup>st</sup> century global society. The Delaware Content Standards state the essential knowledge and skills, as well as the bodies of understanding which students must attain as a result of their public school education, and the standards specific to the quality of work necessary for students to be deemed proficient in a given content area.

The Curriculum Framework Content Standards support students' development in solving problems, gathering and using resources, working collaboratively, and assuming responsibility for their actions so that Delaware students will be successful in a highly challenging academic and competitive global work environment as adults. Effective adults must be able to problem-solve, form reasoned opinions, use technology, participate in a global society, and engage in life-long learning. The teacher resources for curriculum development, presented within this document, based on the Curriculum Framework Content Standards, provide guidance on how to plan; sequence; integrate; and implement the Delaware Content Standards in Delaware classrooms. These resources for curriculum development indicate the expectations of what students should know, understand, and be able to do within a particular content area at three levels.

Separate standards for each content area are not intended to imply that content areas should be taught in isolation, but rather to suggest each content area's unique contribution to an understanding of the world. Integrated learning experiences help students conceptualize both the boundaries and the relationships among content areas. The individual standards should be viewed as building blocks which can be combined in any number of ways to create a solid foundation for effective citizenship and participation in 21<sup>st</sup> century society.

This *Teacher Resource Guide for Curriculum Development* provides clarification about the meaning of the standards and suggests ideas for how teachers might help students to uncover the meaning of the standards. Teachers, schools, and school districts can use the document to guide the process at the local level of creating three-credit career pathways, creating course syllabi, developing transfer tasks that demonstrate understanding, and designing aligned units of instruction. The *Teacher Resource Guide for Curriculum Development* is a tool for alignment of curriculum, instruction, and assessment and integration of career and technical student organizations to the state standards.

## **Organization of the *Teacher Resource Guide for Curriculum Development***

To guide teachers' development of aligned curriculum, instruction, and assessment, the *Teacher Resource Guide for Curriculum Development* provides new components – overarching Enduring Understandings, overarching Essential Questions, and proficiency expectations. These components will give educators additional information and guidance for aligned unit-level curriculum design.

Overarching Enduring Understandings are key ideas within a content area that cut across all proficiency-levels and across specific topics (e.g., “Choices affect the quality of life.”).

Overarching Essential Questions are broad and deep questions with no one right answer – they are central to the content area study and cut across proficiency levels and across topics (e.g., “Can decisions be both right and wrong?”)

Proficiency-level Expectations explain how well the student should know a content standard and to what extent they should demonstrate understanding of that standard at a particular proficiency-level.

### **What is the Delaware Recommended Curriculum?**

The following Goals, Big Idea, Enduring Understandings, and Essential Questions guided the development of the Standards Clarifications and other Recommended Curriculum components. Clarifying the standards started with a fundamental assumption that a backward design approach can help educators in Delaware strategically plan to improve education.

#### **Goals of the Delaware Recommended Curriculum**

- Increase the percentage of students meeting Delaware standards in cooperation with districts and schools, thereby improving student readiness for post-secondary education and work
- Clarify expectations of students for teachers, students, parents, administrators, and the community
- Provide a model for local schools and districts of three-credit career pathways.
- Provide a model for local schools and districts of the process of designing an aligned framework of curriculum, instruction and assessment
- Encourage local districts to develop assessments, curriculum, and instructional units *on their own* to foster student achievement of the Delaware Content Standards

#### **Big Idea for the Delaware Recommended Curriculum**

- Alignment of curriculum, instruction, and assessment to the Delaware Content Standards promotes student understanding and success in 21<sup>st</sup> century society.

## Enduring Understandings for the Delaware Recommended Curriculum

Educators will understand that:

- Integrated learning experiences help students conceptualize both the boundaries and the relationships among the content areas. The individual standards are building blocks which can be combined in any number of ways to create a solid foundation for effective citizenship.
- Understanding how students learn is fundamental to curriculum design. Students may have difficulty learning because the learning environment does not complement their learning needs. These students can often be successful if the environment is altered. It is the responsibility of educators to promote success for each student, regardless of learning styles or needs.
- Aligning curriculum, instruction, and assessment in Delaware classrooms will successfully prepare students for assessments measuring the transfer of knowledge in critical thinking and application, including the DSTP.
- Assessments should center on students demonstrating transfer rather than selecting correct answers through recognition or recall. This type of assessment (transfer tasks) will require a rethinking of instruction. New instructional methods will require new tools. Teaching for understanding helps students to achieve the concepts found in the Delaware content standards.
- Teachers in Delaware schools require examples of and training in *backward design* of curriculum to ensure standards alignment in classrooms.

## Essential Questions for the Delaware Recommended Curriculum

- How can the components of the Delaware Recommended Curriculum help teachers and schools understand, create, and deliver aligned curriculum, instruction, and assessment?
- What kind of curricula and learning principles will ensure students' success in the 21<sup>st</sup> century workplace and post-secondary education?
- What professional development can model alignment and *backward design* for Delaware teachers?

Components of the Delaware Recommended Curriculum will enable students to achieve the Content Standards through rigorous Big Idea instruction anchored on the Enduring Understandings, Essential Questions and Transfer Challenges.

- **Content Standards** describe what students should know and be able to do. These are the desired results for every Delaware public school student.
- **Proficiency Expectations** describe to what extent students should understand and be able to achieve at a specific proficiency level. Proficiency-Level Expectations are directly linked to specific content standards.
- **Big Ideas** reflect a core idea in a particular content area, or several content areas, and yield great depth and breadth of insight into the subject. Studying a big idea across grades and content areas will likely cause a student to make connections across time and space about its meaning, relevance, and importance. Examples of Big Ideas inherent in Delaware Content Standards include: Change,

Interdependence, Patterns, Systems, Environment, Communication and Investigation.

- **Enduring Understandings** provide specific insights about big ideas that with which students should leave school. They are the specific inferences, based on the content standards, which have lasting value beyond the classroom. They are central to a discipline, addressed with differing levels of sophistication at different proficiency levels, and are transferable to new situations. An example of an Enduring Understanding would be the statement: “Biotechnology serves a multifaceted role to sustain or improve the quality of life.”
- **Essential Questions** derive from the benchmarks, and frame the teaching and learning. They point toward key issues and ideas, suggesting meaningful and provocative inquiry into the content. Essential Questions have more than one answer. They promote inquiry, stimulate thought, and spark more questions. They set the stage for higher-order thinking and problem-based learning that promote the transfer of knowledge to new situations. An example of an Essential Question would be: “To what extent can people predict the consequences from human alterations to the physical environment?”

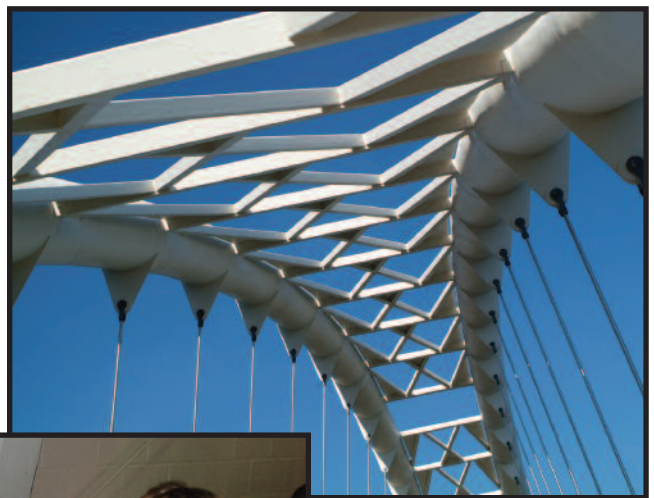
As Wiggins and McTighe (2005) state, “Lessons, units, and courses should be logically inferred from the results sought, not derived from the methods, books, and activities which we are most comfortable.” Curriculum should focus on Big Ideas with clear purposes and learning should be measured against clear goals. Curriculum should not be sequential content coverage or a series of unfocused and/or unconnected activities.

### **What curriculum learning principles will ensure students’ success in the 21<sup>st</sup> century workplace and post-secondary education?**

Delaware schools are preparing our students to live in the 21<sup>st</sup> century. New kinds of problems to be solved and new developments in technology have changed the nature of the world which Delaware students will enter after graduation. Today’s graduates will have the freedom to make decisions that affect their lives and the lives of others. However, their decision-making will be complicated by the fact that they face a greater number of choices with each decision they make. Those graduates will enter a 21<sup>st</sup> century society that redefines itself almost daily, where they will compete for high-quality jobs with people from many nations, work collaboratively, set goals, accept responsibility, and solve problems that will require the ability and confidence to reason and communicate.

It is not possible to accurately predict all issues students may face in the future. However, students who learn how and when to appropriately apply knowledge and skills across content areas will be prepared to handle future challenges. By promoting understanding, not just recall and recognition, and by providing students opportunities to practice the use of skills and knowledge in real-world contexts and through career and technical student organizations; students learn to transfer discrete skills and knowledge across settings and situations. Learning through practice in real-world situations increases the likelihood that students will successfully deal with new and different challenges.

# Delaware Technology Education Standards



# Delaware Technology Education Standards

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Technology Education

Department of Education

## Introduction

The goal of Technology Education is to introduce, to provide an understanding, to provide a place to apply, and to transfer the methodology of technology and the technical and practical application of technology.

The Technology Education Standards Project is part of an initiative at the Department of Education. One of the main goals was to review and update the current Technology Education content standards. A focus was placed on high school standards and the development of structured 3-credit Career Pathways.

As the committee began to work we looked at the Delaware Technology Education Standards, current courses approved in Technology Education and the International Technology Education Association (ITEA) Standards for Technological Literacy. The committee made a philosophical choice to update all Technology Education standards, Kindergarten through grade 12, and to align with the ITEA Standards for Technological Literacy. It was clear that all components were in place to move forward and produce a working document for Technology Education teachers and other stakeholders to utilize as a guide to provide quality Technology Education Programs in Delaware. The program's need to produce students, who upon leaving high school, are ready to work or for post secondary programs that address the need for high skill, high wage, and high demand jobs.

Technology Education is a natural and effective means to curricular integration. In addition to the standards as part of this project, a crosswalk of Technology Education performance indicators to each of the academic standards has been completed and provided for your use. Teams from each academic area worked with a Technology Education sub-committee to insure a quality crosswalk.

The intent is for this project to be an ongoing interactive web-based system to continue to evolve as needed to serve our students.

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