

Revised CT TE Content Standards

Technological literacy is the ability to use, manage, assess, understand and create technology.

Technology education is the study of human innovation, which provides an opportunity for students to apply and manage knowledge and resources related to the human made world. It incorporates collaborative, application-oriented, activity-based strategies used to develop creative thinking skills while solving real-world problems. Technology education prepares students to become lifelong contributing members of our technological society who comprehend the impact of technology and use it to improve the quality of life for all people.

1. The Nature & Evolution of Technology

- Students will understand the nature of technology, how it has evolved and its influence on its own evolution.

2. The Impacts of Technology

- Students will understand the impact that technology has on the personal, social, cultural, economic, political and environmental aspects of their lives.

3. The Research, Design & Engineering

- Students will recognize technology as the result of a creative act, and will be able to apply formal problem-solving strategies to understand and enhance invention and innovation.

4. The Creation & Use of Technology

- Students will know the origins, properties and processing techniques associated with the materials of technology as demonstrated by effective application of the methods producing usable products and by **their** effective(ly) use(ing) **of** those products.

5. The Future of Technology

- Students will demonstrate the ability to take known principles of technological innovation and apply them to hypothetical scenarios effectively.

CONTENT STANDARD 1: The Nature & Evolution of Technology

Students will understand the nature of technology, how it has evolved and its influence on its own evolution

K-12 EXPECTED PERFORMANCES		
Educational Experiences in Grades K-5 will assure that students:	Educational Experiences in Grades 6-8 will assure that students:	Educational experiences in Grades 9-12 will assure that students:
<ul style="list-style-type: none"> • define <i>technology as the modification of the natural environment in order to satisfy perceived human needs and wants</i> • describe business and industry as producers of products or services. • Identify how technological products have evolved; • differentiate between natural and human made items; • <i>define technological system;</i> • <i>identify the parts of a technological system;</i> • <i>use a technological system to solve a problem;</i> • <i>apply the universal input, process, output, feedback (IPOF) system model;</i> • <i>acquire and apply electronically-based information;</i> • 	<ul style="list-style-type: none"> • describe how societies are organized to produce and distribute goods and services in a structured manner; • develop criteria for evaluating technology • <i>research and analyze</i> the historical development a technology and technological systems; • <i>research and analyze</i> how a technological advancement affects the development of other technologies; • explore how people use technology to extends human capabilities, meets needs and solves problems; • <i>Communicate ideas and support arguments about science-related technology matters using relevant science vocabulary, evidence and logic.</i> • <i>Describe how advances in technology have impacted “gendered” occupations</i> • <i>explore and explain the integration of technological systems;</i> 	<ul style="list-style-type: none"> • critically analyze a given technology against a perceived need or want • research how, social, economic, and political forces influence innovation, invention and adaptation • <i>Describe the transformation and conservation of kinetic and potential energy in mechanical, chemical and electrical systems.</i> • <i>Explore and describe how electricity is generated, transferred and used in modern technologies.</i> • <i>use the systems model to analyze a complex technological system;</i> • <i>investigate the universal characteristics of systems and sub-systems;</i>

CONTENT STANDARD 2: The Impacts of Technology

Students will understand the impact that technology has on the personal, social, cultural, economic, political and environmental aspects of their lives.

K-12 EXPECTED PERFORMANCES		
Educational Experiences in Grades K-5 will assure that students:	Educational Experiences in Grades 6-8 will assure that students:	Educational experiences in Grades 9-12 will assure that students:
<ul style="list-style-type: none"> • identify positive and negative impacts and consequences of technology; • explore and identify the personal, societal, economic and environmental effects of technological systems; • identify the relationship of technology to the world of work; • investigate how different societies use technology; • recognize the connections between technology and mathematics, science, language arts, social studies, the arts, physical education and other school subjects; 	<ul style="list-style-type: none"> • explain why technology and technological activity has expected and unexpected effects; • describe how technology impacts global economic and political systems; • demonstrate skills in making career and consumer decisions; • describe and analyze how technological development affects careers and occupations; • debate ethical issues associated with technology; • recognize gender/career stereotypes associated with technology; • Describe how differences in access to technology has positive and negative impacts • Use appropriate tools and techniques to gather, analyze and interpret data. 	<ul style="list-style-type: none"> • analyze technologies based on their positive and negative impacts; • describe the evolution of a technological system and its influence on the economy, culture, society and environment; • demonstrate an understanding of local, state and national regulatory agencies in home and workplace safety; • select and demonstrate ethical solutions to technological problems; • identify and explore career opportunities in the areas of technology; • describe and evaluate how society's expectations drive technological development;

CONTENT STANDARD 3: The Research, Design & Engineering

Students will recognize that technology is the result of a creative act, and will be able to apply formal problem-solving strategies to enhance invention and innovation.

K-12 EXPECTED PERFORMANCES		
Educational Experiences in Grades K-5 will assure that students:	Educational Experiences in Grades 6-8 will assure that students:	Educational experiences in Grades 9-12 will assure that students:
<ul style="list-style-type: none"> • Identify, and investigate a problem; • apply formal strategies for technological problem solving and design • identify an existing technology and describe how it could be used differently. • Demonstrate ability to work as a member of a technological problem solving team • Recognize the importance of diverse view points in technological problem solving • Apply appropriate vocabulary in the presentation of technological solutions; • Create a written and graphic record of a solution to a technological problem • select materials based on their properties; • 	<ul style="list-style-type: none"> • differentiate between human needs and wants; • identify and apply research methods, materials and techniques; • explore the differences between invention innovation and adaptation; • create a persuasive presentation of a technological design solutions; • demonstrate effective organizational and time management skills; • develop organizational skills through practical experiences; • Seek relevant information in books, magazines and electronic sources of information. • Use mathematics to analyze data, interpret it and present relationships between variables in bar and line graphs. 	<ul style="list-style-type: none"> • use research techniques to support design development; • investigate multiple solutions to a design problem; • use a communication technologies to visualize a design idea; • demonstrate knowledge of the legal and ethical principles related to ownership of intellectual properties • document a design to facilitate replication; • select appropriate technical processes and fabricate a prototype; • Explore how simple monomers are combined to engineer plastics (e.g., polyethylene, polyvinyl chloride, polystyrene).

CONTENT STANDARD 4: The Creation & Use of Technology

Students will know the origins, properties and processing techniques associated with the material building blocks of technology as demonstrated by effective application of the methods producing usable products and by effectively using those products.

K-12 EXPECTED PERFORMANCES		
Educational Experiences in Grades K-5 will assure that students:	Educational Experiences in Grades 6-8 will assure that students:	Educational experiences in Grades 9-12 will assure that students:
<ul style="list-style-type: none"> • identify the characteristics of different resources and describe how these resources can serve different purposes; • select and use tools and resources correctly and safely; • describe how the processing of resources can produce a more useful product. • identify local businesses and industries as producers of goods or services; • participate in a technological enterprise within the classroom or school. • use measuring devices accurately; • differentiate between natural and human made materials; • 	<ul style="list-style-type: none"> • identify and describe how individual technological innovations may be combined to create new technologies; • differentiate between primary and secondary raw materials; • explore methods used to convert raw and recycled materials into usable products; • demonstrate the appropriate selection and safe operation of basic hand and power tools; • produce models from a variety of materials, using manual and computer-controlled devices. • Recognize properties of materials can be engineered; • identify how the development and production of products and services are dependent on the transformation of available resources; • Analyze, critique and communicate investigations by words, graphs and drawings. • Perform experiments to explore the relationship between force, distance, and work. • Design and build simple machines to meet specific needs and make everyday tasks easier to perform. • Investigate ,explain and apply scientific laws and principles in the creation and use of technology. • 	<ul style="list-style-type: none"> • compare the techniques used to extract raw materials; • process materials based on their properties; • experiment with the alteration of material characteristics; • create a product demonstrating the application of technological processes; • use tools and procedures safely; • select appropriate tools and procedures for a given task; • identify and describe methods used in manufacturing products; • Explore and explain the properties and uses of common synthetic polymers such as polyethylene, polyvinyl chloride, and polystyrene.

CONTENT STANDARD 5: The Future of Technology

Students will demonstrate the ability to take known principles of technological innovation and apply them to hypothetical scenarios effectively.

K-12 EXPECTED PERFORMANCES		
Educational Experiences in Grades K-5 will assure that students:	Educational Experiences in Grades 6-8 will assure that students:	Educational experiences in Grades 9-12 will assure that students:
<ul style="list-style-type: none"> • identify technological careers of the future; • Apply the past and present technology experiences to future technological scenarios 	<ul style="list-style-type: none"> • trace the historical developments of a technology and hypothesizing about its future; • predict the role of technological systems in future societies; • explore how the space program provides new information to be used in future technological advancements; • Explore how technology can be used to sustain life in space. • 	<ul style="list-style-type: none"> • forecast trends in new and emerging technologies (e.g....nanotechnology, electromagnetic radiation in communications, bio-related and alternative energy sources)and their potential impacts; • explore future labor market trends and educational needs. • explore the problems and possibilities of construction practices in the alternative environmental settings; • investigate space industrialization; • identify and explore technological solutions to future global needs and their impacts on individuals; • Explore how human beings use technology to increase the carrying capacity of their environment • Investigate how principles of genetics and cellular chemistry are used to produce new foods and medicines in biotechnological processes.