

New Jersey Core Curriculum Content Standards for Technology

INTRODUCTION

Technology in the 21st Century

Technology is uniquely positioned to transform learning, to foster critical thinking, creativity, and innovation, and to prepare students to thrive in the global economy. As engaged digital learners, students are able to acquire and apply content knowledge and skills through active exploration, interaction, and collaboration with others across the globe, challenging them to *design the future* as envisioned in the statements that follow:

Mission: *Technology enables students to solve real world problems, enhance life, and extend human capability as they meet the challenges of a dynamic global society.*

Vision: The systematic integration of technology across the curriculum and in the teaching and learning process fosters a population that leverages 21st century resources to:

- Apply information-literacy skills to access, manage, and communicate information using a range of emerging technological tools.
- Think critically and creatively to solve problems, synthesize and create new knowledge, and make informed decisions that affect individuals, the world community, and the environment.
- Gain enhanced understanding of global interdependencies as well as multiple cultural perspectives, differing points of view, and diverse values.
- Employ a systemic approach to understand the design process, the designed world, and the interrelationship and impact of technologies.
- Model digital citizenship.

Intent and Spirit of the Technology Standards

All students acquire content area knowledge and skills in: (1) Visual and Performing Arts, (2) Comprehensive Health and Physical Education, (3) Language Arts Literacy, (4) Mathematics, (5) Science, (6) Social Studies, (7) World Languages, (8) Educational Technology, Technology Education, Engineering, and Design, and (9) 21st Century Life and Careers. As they do so, they are supported by the ongoing, transparent, and systematic integration of technology from preschool to grade 12 in preparation for postsecondary education and the workplace.

In **Preschool**, technology offers versatile learning tools that can support children's development in all domains. For example, electronic storybooks can "read" stories to children in multiple languages; adventure games foster problem-solving skills; story-making programs encourage literacy and creativity; math-related games can help children count and classify; and science activities promote inquiry and an understanding of the world through the eyes of a child. When preschoolers are encouraged to work together with electronic devices and computers, social skills are tapped as children negotiate turn-taking. However, technology should not replace the concrete, real-life experiences that are critical to a young child's learning; it must always be used in balance with other meaningful activities and routines. Technology should be embedded into children's learning centers and should enhance their learning and development during choice time as well as in small-group experiences.

In grades **K-2**, students are formally introduced to the basic features and functions of computers and demonstrate understanding that technology enables them to communicate beyond the classroom on a variety of topics. K-2 students are also exposed to elements of the design process, design systems, and a variety of technology resources, and understand the importance of safety when using technological tools.

In grades **3-4**, students understand the purpose of, and are able to use, various computer applications. They continue to develop information-literacy skills and increasingly use technology to communicate with others in support of learning, while also recognizing the need for cyber safety and acceptable use policies. Students in grades 3-4 also investigate the impact of technology systems, understand the design process, and use it for problem solving.

In grades **5-8**, students expand their capacity to use operations and applications, apply information-literacy skills, and select the appropriate tools and resources to accomplish a variety of tasks, as they develop digital citizenship. As students participate in online learning communities, collaborating in the design of products that address local and global issues across the curriculum, they build understanding of the perspectives of learners from other countries. Students at this level can apply the design process in the development of products; understand impact constraints, trade-offs, and resource selection; and solve a design challenge and/or build a prototype using the design process. Students can explain why human-designed systems, products, and environments need to be monitored, maintained, and improved, and they recognize the interdependence of subsystems as parts of a system.

In grades **9-12**, students demonstrate advanced computer operation and application skills by publishing products related to real-world situations (e.g., digital portfolios, digital learning games and simulations), and they understand the impact of unethical use of digital tools. They collaborate adeptly in virtual environments and incorporate global perspectives into problem solving at home, at school, and in structured learning experiences, with the growing realization that people in the 21st century are interconnected economically, socially, and environmentally and have a shared future.

High School Specialization in technology enables students to design, create, and reverse-engineer technology products or systems, document the application of the design process, and understand its impact—including ethical considerations, costs, trade-offs, risks, benefits, and choice of resources. Students develop products that address local and global issues and challenges, which are disseminated for peer review.

Revised Standards

The 2009 standards provide the foundation for creating local curricula and authentic performance assessments and emulate the philosophy and goals contained in documents produced by national technology organizations, including the Partnership for the 21st Century Skills and the [New Jersey Educational Technology Plan](#). The organization of the strands in standards 8.1 and 8.2, as well as the content and skills within each strand, has been reconceptualized to address emerging technologies and technological applications that are needed for life and work in the global age.

- Standard 8.1, Educational Technology, is aligned to the [International Society for Technology in Education](#) (ISTE) standards and the [Partnership for the 21st Century Skills](#) framework.
- Standard 8.2, formerly Technology Education, is renamed Technology Education, Engineering, and Design and is aligned with the goals of the [International Technology Education Association](#) (ITEA) and the Partnership for 21st Century Skills framework.

National, International, and State Advocacy

The Partnership for 21st Century Skills, ISTE, and the [American Association of School Libraries](#) (AASL) provide leadership and service to improve teaching and learning by advancing the effective use of technology in education. The ITEA promotes technological literacy by supporting the teaching of technology. The [Consortium for School Networking](#) (CoSN) is an organization for K-12 technology leaders who use technology strategically to improve learning.

At the state level, the [New Jersey Technology Education Association](#) (NJTEA) fosters the development of technological literacy through Technology Education Programs. The [New Jersey Association for Educational Technology](#) (NJ AET) and the [New Jersey](#)

[Educational Computing Cooperative](#) (NJECC), Inc., promote and support the integration of technology in education as it applies to student learning, professional development, and instructional planning.

Resources

American Association of School Librarians. (2007). *Standards for the 21st century learner*. Online: <http://www.aasl.org>

International Society for Technology in Education. (2002). *National educational technology standards for administrators*. Online: http://www.iste.org/Content/NavigationMenu/NETS/ForAdministrators/2009Standards/NETS_for_Administrators_2009.htm

International Society for Technology in Education. (2007). *National educational technology standards for students* (2nd Ed.). Online: http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS_for_Students_2007.htm

International Society for Technology in Education. (2008). *National educational technology standards for teachers* (2nd Ed.). Online: http://www.iste.org/Content/NavigationMenu/NETS/ForTeachers/2008Standards/NETS_for_Teachers_2008.htm

International Technology Education Association. (2003). *Advancing excellence in technological literacy: Student assessment, professional development, and program standards*. Online: <http://www.iteaconnect.org/TAA/PDFs/AETL.pdf>

International Technology Education Association. (2007). *Standards for technological literacy*. Online: <http://www.iteaconnect.org/TAA/PDFs/xstnd.pdf>

Partnership for 21st Century Skills. (2005). *Framework for 21st century learning*. Online: <http://www.21stcenturyskills.org>

Content Area		Technology	
Standard		8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.	
Strand		A. Technology Operations and Concepts	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
Preschool	The use of technology and digital tools requires knowledge and appropriate use of operations and related applications .	8.1.P.A.1	Navigate simple menus on screen with a mouse.
		8.1.P.A.2	Type one's own name using the keyboard.
		8.1.P.A.3	Print a document independently.
		8.1.P.A.4	Identify the "power keys" (e.g., ENTER, spacebar) on a keyboard.
		8.1.P.A.5	Recognize that the number keys are in a row on the top of the keyboard.
		8.1.P.A.6	Use basic technology terms in conversations.
		8.1.P.A.7	Turn smart toys on and off.
2	The use of technology and digital tools requires knowledge and appropriate use of operations and related applications .	8.1.2.A.1	Identify the basic features of a computer and explain how to use them effectively.
		8.1.2.A.2	Use technology terms in daily practice.
		8.1.2.A.3	Discuss the common uses of computer applications and hardware and identify their advantages and disadvantages.
		8.1.2.A.4	Create a document with text using a word processing program.
		8.1.2.A.5	Demonstrate the ability to navigate in virtual environments that are developmentally appropriate .
4	The use of technology and digital tools requires knowledge and appropriate use of operations and related applications .	8.1.4.A.1	Demonstrate effective input of text and data using an input device.
		8.1.4.A.2	Create a document with text formatting and graphics using a word processing program.
		8.1.4.A.3	Create and present a multimedia presentation that includes graphics.
		8.1.4.A.4	Create a simple spreadsheet, enter data, and interpret the information.
		8.1.4.A.5	Determine the benefits of a wide range of digital tools by using them to solve problems.

8	The use of technology and digital tools requires knowledge and appropriate use of operations and related applications .	8.1.8.A.1	Create professional documents (e.g., newsletter, personalized learning plan, business letter or flyer) using advanced features of a word processing program.
		8.1.8.A.2	Plan and create a simple database, define fields, input data, and produce a report using sort and query.
		8.1.8.A.3	Create a multimedia presentation including sound and images.
		8.1.8.A.4	Generate a spreadsheet to calculate, graph, and present information.
		8.1.8.A.5	Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems.
12	The use of technology and digital tools requires knowledge and appropriate use of operations and related applications .	8.1.12.A.1	Construct a spreadsheet, enter data, and use mathematical or logical functions to manipulate data, generate charts and graphs, and interpret the results.
		8.1.12.A.2	Produce and edit a multi-page document for a commercial or professional audience using desktop publishing and/or graphics software.
		8.1.12.A.3	Participate in online courses, learning communities, social networks, or virtual worlds and recognize them as resources for lifelong learning.
		8.1.12.A.4	Create a personalized digital portfolio that contains a résumé, exemplary projects, and activities, which together reflect personal and academic interests, achievements, and career aspirations.

Content Area		Technology	
Standard		8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.	
Strand		B. Creativity and Innovation	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
Preschool	The use of digital tools and media-rich resources enhances creativity and the construction of knowledge.	8.1.P.B.1	Use a digital camera to take a picture.
2	The use of digital tools and media-rich resources enhances creativity and the construction of knowledge.	8.1.2.B.1	Illustrate and communicate original ideas and stories using digital tools and media-rich resources .
4	The use of digital tools and media-rich resources enhances creativity and the construction of knowledge.	8.1.4.B.1	Produce a media-rich digital story about a significant local event or issue based on first-person interviews.
8	The use of digital tools and media-rich resources enhances creativity and the construction of knowledge.	8.1.8.B.1	Synthesize and publish information about a local or global issue or event on a collaborative, web-based service (also known as a shared hosted service).
12	The use of digital tools and media-rich resources enhances creativity and the construction of knowledge.	8.1.12.B.1	Design and pilot a digital learning game to demonstrate knowledge and skills related to one or more content areas or a real world situation.

Content Area		Technology	
Standard		8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.	
Strand		C. Communication and Collaboration	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
Preschool	Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems.	8.1.P.C.1	Operate frequently used, high-quality, interactive games or activities in either screen or toy-based formats.
		8.1.P.C.2	Access materials on a disk, cassette tape, or DVD.
2	Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems.	8.1.2.C.1	Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using electronic tools.
4	Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems.	8.1.4.C.1	Engage in online discussions with learners in the United States or from other countries to understand their perspectives on a global problem or issue.
8	Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems.	8.1.8.C.1	Participate in an online learning community with learners from other countries to understand their perspectives on a global problem or issue, and propose possible solutions.
12	Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems.	8.1.12.C.1	Develop an innovative solution to a complex, local or global problem or issue in collaboration with peers and experts, and present ideas for feedback in an online community.

Content Area		Technology	
Standard		8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.	
Strand		D. Digital Citizenship	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	Technological advancements create societal concerns regarding the practice of safe, legal, and ethical behaviors.	8.1.2.D.1	Model legal and ethical behaviors when using both print and non-print information by citing resources.
4	Technological advancements create societal concerns regarding the practice of safe, legal, and ethical behaviors.	8.1.4.D.1	Explain the need for each individual, as a member of the global community, to practice cyber safety, cyber security, and cyber ethics when using existing and emerging technologies.
		8.1.4.D.2	Analyze the need for and use of copyrights.
		8.1.4.D.3	Explain the purpose of an acceptable use policy and the consequences of inappropriate use of technology.
8	Technological advancements create societal concerns regarding the practice of safe, legal, and ethical behaviors.	8.1.8.D.1	Model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics.
		8.1.8.D.2	Summarize the application of fair use and Creative Commons guidelines.
		8.1.8.D.3	Demonstrate how information on a controversial issue may be biased.
12	Technological advancements create societal concerns regarding the practice of safe, legal, and ethical behaviors.	8.1.12.D.1	Evaluate policies on unauthorized electronic access (i.e., hacking) and disclosure and on dissemination of personal information.
		8.1.12.D.2	Demonstrate appropriate use of copyrights as well as fair use and Creative Commons guidelines.
		8.1.12.D.3	Compare and contrast international government policies on filters for censorship.
		8.1.12.D.4	Explain the impact of cyber crimes on society.

Content Area		Technology	
Standard		8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.	
Strand		E. Research and Information Literacy	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
Preschool	Effective use of digital tools assists in gathering and managing information.	8.1.P.E.1	Use the Internet to explore and investigate information with a teacher's support.
2	Effective use of digital tools assists in gathering and managing information.	8.1.2.E.1	Use digital tools and online resources to explore a problem or issue affecting children, and discuss possible solutions.
4	Effective use of digital tools assists in gathering and managing information.	8.1.4.E.1	Investigate a problem or issue found in the United States and/or another country from multiple perspectives, evaluate findings, and present possible solutions, using digital tools and online resources for all steps.
		8.1.4.E.2	Evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.
8	Effective use of digital tools assists in gathering and managing information.	8.1.8.E.1	Gather and analyze findings using data collection technology to produce a possible solution for a content-related or real-world problem.
12	Effective use of digital tools assists in gathering and managing information.	8.1.12.E.1	Develop a systematic plan of investigation with peers and experts from other countries to produce an innovative solution to a state, national, or worldwide problem or issue.
		8.1.12.E.2	Predict the impact on society of unethical use of digital tools, based on research and working with peers and experts in the field.

Content Area		Technology	
Standard		8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.	
Strand		F. Critical Thinking, Problem Solving, and Decision-Making	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
Preschool	Information accessed through the use of digital tools assists in generating solutions and making decisions.	8.1.P.F.1	Navigate the basic functions of a browser, including how to open or close windows and use the “back” key.
2	Information accessed through the use of digital tools assists in generating solutions and making decisions.	8.1.2.F.1	Use mapping tools to plan and choose alternate routes to and from various locations.
4	Information accessed through the use of digital tools assists in generating solutions and making decisions.	8.1.4.F.1	Select and apply digital tools to collect, organize, and analyze data that support a scientific finding.
8	Information accessed through the use of digital tools assists in generating solutions and making decisions.	8.1.8.F.1	Use an electronic authoring tool in collaboration with learners from other countries to evaluate and summarize the perspectives of other cultures about a current event or contemporary figure.
12	Information accessed through the use of digital tools assists in generating solutions and making decisions.	8.1.12.F.1	Select and use specialized databases for advanced research to solve real-world problems.
		8.1.12.F.2	Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address educational, career, personal, and social needs.

Content Area	Technology		
Standard	8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.		
Strand	A. Nature of Technology: Creativity and Innovation		
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	Technology products and systems impact every aspect of the world in which we live.	8.2.2.A.1	Describe how technology products, systems, and resources are useful at school, home, and work.
4	Technology products and systems impact every aspect of the world in which we live.	8.2.4.A.1	Investigate factors that influence the development and function of technology products and systems.
		8.2.4.A.2	Using a digital format, compare and contrast how a technology product has changed over time due to economic, political, and/or cultural influences.
8	Technology products and systems impact every aspect of the world in which we live.	8.2.8.A.1	Explain the impact of globalization on the development of a technological system over time.
12	Technology products and systems impact every aspect of the world in which we live.	8.2.12.A.1	Design and create a technology product or system that improves the quality of life and identify trade-offs, risks, and benefits.

Content Area		Technology	
Standard		8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.	
Strand		B. Design: Critical Thinking, Problem Solving, and Decision-Making	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	The design process is a systematic approach to solving problems.	8.2.2.B.1	Brainstorm and devise a plan to repair a broken toy or tool using the design process.
		8.2.2.B.2	Investigate the influence of a specific technology on the individual, family, community, and environment.
4	The design process is a systemic approach to solving problems.	8.2.4.B.1	Develop a product using an online simulation that explores the design process.
		8.2.4.B.2	Design an alternative use for an existing product.
		8.2.4.B.3	Explain the positive and negative effect of products and systems on humans, other species, and the environment.
		8.2.4.B.4	Compare and contrast how technology transfer happens within a technology, among technologies, and among other fields of study.
8	The design process is a systemic approach to solving problems.	8.2.8.B.1	Design and create a product that addresses a real-world problem using the design process and working with specific criteria and constraints.
		8.2.8.B.2	Identify the design constraints and trade-offs involved in designing a prototype (i.e., how the prototype might fail and how it might be improved) by completing a design problem and reporting results in a multimedia presentation.
		8.2.8.B.3	Solve a science-based design challenge and build a prototype using science and math principles throughout the design process.
12	The design process is a systemic approach to solving problems.	8.2.12.B.1	Design and create a product that maximizes conservation and sustainability of a scarce resource, using the design process and entrepreneurial skills throughout the design process.
		8.2.12.B.2	Design and create a prototype for solving a global problem, documenting how the proposed design features affect the feasibility of the prototype through the use of engineering, drawing, and other technical methods of illustration.
		8.2.12.B.3	Analyze the full costs, benefits, trade-offs, and risks related to the use of technologies in a potential career path.

Content Area		Technology	
Standard		8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.	
Strand		C. Technological Citizenship, Ethics, and Society	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	Knowledge and understanding of human, cultural, and societal values are fundamental when designing technology systems and products in the global society.	8.2.2.C.1	Demonstrate how reusing a product affects the local and global environment.
4	Knowledge and understanding of human, cultural, and societal values are fundamental when designing technology systems and products in the global society.	8.2.4.C.1	Explain the impact of disposing of materials in a responsible way.
		8.2.4.C.2	Explain the purpose of trademarks and the impact of trademark infringement on businesses.
		8.2.4.C.3	Examine ethical considerations in the development and production of a product from its inception through production, marketing, use, maintenance, and eventual disposal by consumers.
8	Knowledge and understanding of human, cultural, and societal values are fundamental when designing technology systems and products in the global society.	8.2.8.C.1	Explain the need for patents and the process of registering one.
		8.2.8.C.2	Compare and contrast current and past incidences of ethical and unethical use of labor in the United States or another country and present results in a media-rich presentation.
12	Knowledge and understanding of human, cultural, and societal values are fundamental when designing technology systems and products in the global society.	8.2.12.C.1	Analyze the ethical impact of a product, system, or environment, worldwide, and report findings in a web-based publication that elicits further comment and analysis.
		8.2.12.C.2	Evaluate ethical considerations regarding the sustainability of resources that are used for the design, creation, and maintenance of a chosen product.
		8.2.12.C.3	Evaluate the positive and negative impacts in a design by providing a digital overview of a chosen product and suggest potential modifications to address the negative impacts.

Content Area	Technology		
Standard	8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.		
Strand	D. Research and Information Fluency		
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	Information-literacy skills, research, data analysis, and prediction provide the basis for the effective design of technology systems.	8.2.2.D.1	Collect and post the results of a digital classroom survey about a problem or issue and use data to suggest solutions.
4	Information-literacy skills, research, data analysis, and prediction provide the basis for the effective design of technology systems.	8.2.4.D.1	Analyze responses collected from owners/users of a particular product and suggest modifications in the design of the product based on their responses.
8	Information-literacy skills, research, data analysis, and prediction provide the basis for the effective design of technology systems.	8.2.8.D.1	Evaluate the role of ethics and bias on trend analysis and prediction in the development of a product that impacts communities in the United States and/or other countries.
12	Information-literacy skills, research, data analysis, and prediction provide the basis for the effective design of technology systems.	8.2.12.D.1	<u>Reverse-engineer</u> a product to assist in designing a more eco-friendly version, using an analysis of trends and data about renewable and sustainable materials to guide your work.

Content Area	Technology		
Standard	8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.		
Strand	E. Communication and Collaboration		
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	Digital tools facilitate local and global communication and collaboration in designing products and systems.	8.2.2.E.1	Communicate with students in the United States or other countries using digital tools to gather information about a specific topic and share results.
4	Digital tools facilitate local and global communication and collaboration in designing products and systems.	8.2.4.E.1	Work in collaboration with peers to produce and publish a report that explains how technology is or was successfully or unsuccessfully used to address a local or global problem.
8	Digital tools facilitate local and global communication and collaboration in designing products and systems.	8.2.8.E.1	Work in collaboration with peers and experts in the field to develop a product using the design process, data analysis, and trends, and maintain a digital log with annotated sketches to record the development cycle.
12	Digital tools facilitate local and global communication and collaboration in designing products and systems.	8.2.12.E.1	Use the design process to devise a technological product or system that addresses a global issue, and provide documentation through drawings, data, and materials, taking the relevant cultural perspectives into account throughout the design and development process.

Content Area		Technology	
Standard		8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.	
Strand		F. Resources for a Technological World	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	Technological products and systems are created through the application and appropriate use of technological resources.	8.2.2.F.1	Identify the resources needed to create technological products and systems.
4	Technological products and systems are created through the application and appropriate use of technological resources.	8.2.4.F.1	Describe how resources are used in a technological product or system.
		8.2.4.F.2	Explain how resources are processed in order to produce technological products and systems.
8	Technological products and systems are created through the application and appropriate use of technological resources.	8.2.8.F.1	Explain the impact of resource selection and processing in the development of a common technological product or system.
		8.2.8.F.2	Explain how the resources and processes used in the production of a current technological product can be modified to have a more positive impact on the environment (e.g., by using recycled metals, alternate energy sources) and the economy.
12	Technological products and systems are created through the application and appropriate use of technological resources.	8.2.12.F.1	Determine and use the appropriate application of resources in the design, development, and creation of a technological product or system.
		8.2.12.F.2	Explain how material science impacts the quality of products.
		8.2.12.F.3	Select and utilize resources that have been modified by digital tools (e.g., CNC equipment, CAD software) in the creation of a technological product or system.

Content Area		Technology	
Standard		8.2 Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.	
Strand		G. The Designed World	
By the end of grade	Content Statement	CPI #	Cumulative Progress Indicator (CPI)
2	The designed world is the product of a design process that provides the means to convert resources into products and systems.	8.2.2.G.1	Describe how the parts of a common toy or tool interact and work as part of a system.
		8.2.2.G.2	Explain the importance of safety in the use and selection of appropriate tools and resources for a specific purpose.
4	The designed world is the product of a design process that provides the means to convert resources into products and systems.	8.2.4.G.1	Examine a malfunctioning tool and use a step-by-step process to troubleshoot and present options to repair the product.
		8.2.4.G.2	Explain the functions of a system and subsystems.
		8.2.4.G.3	Evaluate the function, value, and esthetics of a technological product, system, or environment from the perspective of the user and the producer.
8	The designed world is the product of a design process that provides the means to convert resources into products and systems.	8.2.8.G.1	Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
		8.2.8.G.2	Explain the interdependence of a subsystem that operates as part of a system.
12	The designed world is the product of a design process that provides the means to convert resources into products and systems.	8.2.12.G.1	Analyze the interactions among various technologies and collaborate to create a product or system demonstrating their interactivity.

Glossary:

Basic technology terms for preschool: Examples digital camera, battery, screen, computer, Internet, mouse, keyboard, and printer.

Controversial issue: For example, global warming, scarcity of water, alternative energy sources, election campaigns.

Current and emerging technology resources: For example, cell phones, GPS, online communities using wikis, blogs, vlogs, and/or Nings.

Data-collection technology: For example, probes, handheld devices, and geographic mapping systems.

Digital learning game: For example, Alice, Lively.

Developmentally appropriate: Students' developmental levels prescribe the learning environment and activities that are used.

Digital tools for grade 2: For example, computers, digital cameras, software..

Digital tools for grades 4, 8, and 12: For example, computers, digital cameras, probing devices, software, cell phones, GPS, online communities, VOIP, and virtual conferences.

Electronic authoring tools: Software that facilitates online book development (e.g., multimedia electronic book).

Mapping tools: For example, Google earth, Yahoo maps, and Google maps.

Media-rich: Multiple forms of digital applications in one product (e.g., graphic design, word processing, and spreadsheet).

Multimedia presentation: For example, movie, podcast, vlog.

Online discussion: UNICEF, Oracle, i-Earn, blogs, wikis.

Online learning community: For example, i-Earn, Ning, blogs, wikis, Second Life.

Operations and related applications: For example, saving a word processing file to a network drive, printing a spreadsheet.

Reverse engineer: To isolate the components of a completed system.

Shared hosted services: For example, podcasts, videos, or vlogs.

Technologies: Medical, agricultural, and related biotechnologies, energy and power technologies, information and communications technologies, transportation technologies, manufacturing technologies, and construction technologies.

Virtual environments: For example, games, simulations, websites, blogs.

Web-based publication: For example, web pages, wikis, blogs, ezines.