

TECHNOLOGY CURRICULUM

National Technology Standards for All Students

The national technology foundation standards for students are divided into six broad categories. Standards within each category are to be introduced, reinforced and mastered by students. The categories provide the framework for linking performance indicators to the standards. Technology based activities are developed from these standards and performance indicators. Activities should be designed in which students achieve success in learning, communication, and life skills.

Technology Foundation Standards for Students

1 Basic operations and concepts

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

2 Social, ethical, and human issues

- Students understand the ethical, cultural, moral, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

3 Technology productivity tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

4 Technology communications tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

5 Technology research tools

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

6 Technology problem-solving and decision-making tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

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FOUNDATION 1: Basic Operations and Concepts

Standard A: Students demonstrate a sound understanding of the nature and operation of technology systems Standard B Students are proficient in the use of technology

Performance Indicators: :*indicates that the performance indicator applies to more than one standard category

As a result of their schooling students will be able to...

Pre-K - 2	3-5	6-8	9-12
<ol style="list-style-type: none"> 1. Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer,) to successfully operate computers and multimedia (i.e. DVDs, VCRs, projectors, cameras, and other technologies). 2. Use a variety of media and technology resources for directed and independent learning activities. *(1,3) *Applies to more than one standard category. 3. Communicate about technology using developmentally appropriate and accurate terminology. 4. Use developmentally appropriate multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias) to support learning. 5. Identify and define basic computer terminology (e.g., software, hardware, cursor, startup/shutdown, storage medium, file, memory). 6. Identify and explain the functions of the components of a computer system(e.g. monitor, central processing unity, storage devices, keyboard, mouse, printer). 7. Demonstrate proper care and correct use of media and equipment. 8. Demonstrate the correct use of input devices (e.g., mouse, keyboard) and output devices (e.g., monitor, printer, speakers). 9. Demonstrate appropriate posture and mouse manipulations. 	<ol style="list-style-type: none"> 1. Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. 2. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1,2) *Applies to more than one standard category. 3. Develop touch keyboarding techniques using both hands. 4. Save and backup files on a computer hard drive, storage medium, or server. 5. Restart computer when frozen, using soft boot. 	<ol style="list-style-type: none"> 1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use. 2. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving. *(1,6) *Applies to more than one standard category 3. Demonstrate touch keyboarding skills at acceptable speed and accuracy levels (25-35 wpm) 4. Organize and backup files on a computer hard drive, storage, medium, or server. 5. Identify and define computer networking terms. 6. Describe the operating and file management software of a computer (e.g., desktop, file, window, folder, directory, pull-down menu, dialog box, etc.) 7. Use a graphics program to create or modify detail to an image or picture. 8. Know and use maintenance procedures for available equipment. 	<ol style="list-style-type: none"> 1. Make informed choices among technology systems, resources, and services. *(1,2) *Applies to more than one standard category 2. Demonstrate touch keyboarding mechanics and touch type accurately. 3. Identify common graphic, video, sound and file formats. 4. Use desktop or video conferencing equipment and systems. 5. Demonstrate how to import, and export text, graphic, and multimedia files.

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FOUNDATION 2: Social, ethical, moral and human issues

- Standard A Students understand the ethical, cultural, moral and societal issues related to technology.
 Standard B Students practice responsible uses of technology systems, information and software.
 Standard C Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits and productivity.

As a result of their schooling students will be able to...

PreK-2	3-5	6-8	9-12
<ol style="list-style-type: none"> 1. Work cooperatively and collaboratively with peers, family members, and others when using technology in the classroom. 2. Demonstrate positive social and ethical behaviors when using technology. 3. Practice responsible use of technology systems and software. 4. Explain copyright and what it means to the student. 	<ol style="list-style-type: none"> 1. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. *(1,2) 2. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. 3. Discuss security issues and procedures (i.e. passwords, privacy). 4. Discuss copyright issues and laws. 	<ol style="list-style-type: none"> 1. Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society. 2. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse. 3. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. *(2,5,6) 4. Exhibit ethical behaviors when using copyright materials. 	<ol style="list-style-type: none"> 1. Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs. 2. Make informed choices among technology systems, resources, and services. *(1,2) 3. Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole. 4. Demonstrate and advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information.

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FOUNDATION 3: Technology productivity tools

STANDARD A :Students use technology tools to enhance learning, increase productivity, and promote creativity.

STANDARD B :Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

As a result of their schooling students will be able to...

PreK-2	3-5	6-8	9-12
<ol style="list-style-type: none"> 1. Use a variety of media and technology resources for directed and independent learning activities. *(1,3) 2. Create developmentally appropriate multimedia products with support from teachers, family members, or student partners (e.g., use draw, paint or graphics software to create simple signs, posters, banners, charts, visuals, etc.) 3. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. *(3,4,5,6) 	<ol style="list-style-type: none"> 1. Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. 2. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. *(3,4) 3. Identify and define basic word processing terminology (e.g., cursor, open, save, file, I-beam, window, document, cut, copy, paste) 4. Produce and edit a word-processed document. 5. Incorporate graphics, pictures, and sound into a document. 6. Identify and explain basic spreadsheet terms. 7. Use a prepared spreadsheet template to enter and edit data and to produce and interpret a simple graph or chart. 8. Describe the purpose and use of security applications. 9. Identify and explain basic power point terms. 10. Produce a simple presentation (1-5 slides). 	<ol style="list-style-type: none"> 1. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, web tools) to support learning and research. *(3,5) 2. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. *(3,6) 3. Demonstrate the text editing features of a word processing programs. 4. Demonstrate the special formatting features (e.g., borders, shading, centering, justification) of a word processing program). 5. Identify and define basic database terms. 6. Use a prepared database template to enter and edit data, and to locate records. 7. Describe the various applications of productivity software programs. 8. Use advanced text formatting and layout styles to produce a document. 9. Classify collected data and construct a simple database. 10. Construct a simple spreadsheet. 11. Plot and use different types of charts and graphs. 12. Incorporate database and spreadsheet information in word-processed documents. 	<ol style="list-style-type: none"> 1. Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence). *(3,4) 2. Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. *(3,5,6) 3. Use desktop publishing and graphics software to produce page layouts in different formats (e.g. brochure, tri-fold, newsletter) 4. Develop a document or file for inclusion into a website or webpage. 5. Use graphic or presentation software to visually communicate ideas or concepts. 6. Generate modifiable flow charts, project time lines, organizational charts, or calendars.

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FOUNDATION 4: Technology communication tools

STANDARD A: Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences. **STANDARD B** Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

As a result of their schooling students will be able to...

PreK-2	3-5	6-8	9-12
<ol style="list-style-type: none"> 1. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. *(3,4,5,6) 2. Gather information and communicate with others using telecommunications, with support from teachers, family members, or student partners 3. Use preselected Internet sites. 	<ol style="list-style-type: none"> 1. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside, (3,4) 2. Use telecommunications efficiently and effectively to access remote information, communicate with others in support of direct and independent learning, and pursue personal interests(e.g.,use the functions of a web browser to navigate and save www sites). 3. Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. *(4,5) 4. Identify and use simple search engines and directories. 	<ol style="list-style-type: none"> 1. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. *(4,5,6) 2. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. *(4,5) 3. Demonstrate efficient Internet navigation. 4. Demonstrate the ability to refine search results. 	<ol style="list-style-type: none"> 1. Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence). *(3,4) 2. Routinely and efficiently use online information resources to meet needs for collaboration, research, publication, communication, and productivity. *(4,5,6) 3. Select and apply technology tools for research, information analysis, problem solving, and decision making in content learning. *(4,5) 4. Exhibit efficient techniques using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. *(4,5,6) 5. Demonstrate the ability to retrieve and download files from a remote computer. 6. Participate in an on-line discussion group or listserv appropriate to a content area. 7. Gather and organize statistical or survey data using email, or on-line news or discussion groups.

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FOUNDATION 5: Technology research tools

STANDARD A: Students use technology to locate, evaluate, and collect information from a variety of sources.

STANDARD B: Students use technology tools to process data and report results.

STANDARD C: Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

As a result of their schooling students will be able to...

PreK-2	3-5	6-8	9-12
<p>1. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. *(3,4,5,6)</p>	<p>1. Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. *(4,5)</p> <p>2. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. *(5,6)</p> <p>3. Determine when technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. *(5,6)</p>	<p>1. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research. *(3,5)</p> <p>2. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. *(4,5,6)</p> <p>3. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. *(4,5)</p> <p>4. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.</p>	<p>1. Evaluate technology-based options, including distance and distributed education, for lifelong learning.</p> <p>2. Routinely and efficiently use online information resources to meet needs for collaboration, research, publication, communication, and productivity. *(4,5,6)</p> <p>3. Select and apply technology tools for research, information analysis, problem solving, and decision making in content learning. *(4,5)</p> <p>4. Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. *(3,5,6)</p> <p>5. Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. *(4,5,6)</p>

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FOUNDATION 6: Technology problem-solving and decision-making tools.

STANDARD A Students use technology resources for solving problems and making informed decisions. STANDARD B Students employ technology in the development of strategies for solving problems in the real world.

As a result of their schooling students will be able to...

PreK-2	3-5	6-8	9-12
<p>1. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. *(3,4,5,6)</p>	<p>1. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. *(5,6)</p> <p>2. Determine when technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. *(5,6)</p> <p>3. Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources.</p>	<p>1. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. *(3,6)</p> <p>2. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. *(4,5,6)</p> <p>3. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. *(5,6)</p> <p>4. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving. *(1,6)</p> <p>5. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. *(2,5,6)</p>	<p>1. Routinely and efficiently use online information resources to meet needs for collaboration, research, publication, communication, and productivity. *(4,5,6)</p> <p>2. Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. *(3,5,6)</p> <p>3. Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. *(4,5,6)</p>