

**Computer Technology
Standards of Learning
For Virginia's Public Schools**

June 22, 2005

**Board of Education
Commonwealth of Virginia**

Computer/Technology Standards of Learning

Introduction

Technology Literate

*...to possess technology skills that support learning,
personal productivity, decision making, and daily life.*

Six-Year Educational Technology Plan for Virginia, 2003-2009

The Computer/Technology Standards of Learning identify and define the progressive development of essential knowledge and skills necessary for students to access, evaluate, use and create information using technology. They provide a framework for technology literacy and demonstrate a progression from physical manipulation skills for the use of technology, to intellectual skills necessary for information use, to skills needed for working responsibly and productively within groups. Computer/technology proficiency is not an end in itself, but lays the foundation for continuous learning. The focus is on learning using technology rather than learning about technology.

To become technologically proficient, the student must develop the skills through integrated activities in all content areas K-12, rather than through one specific course. These skills should be introduced and refined collaboratively by all K-12 teachers as an integral part of the learning process. Teachers can use these standards as guidelines for planning technology-based activities in which students achieve success in learning, communication, and prepare them to meet the challenges of today's technology-rich world of work.

Computer/Technology Standards of Learning

Grades K-2

Basic Operations and Concepts

- C/T K-2.1 The student will demonstrate knowledge of the nature and operation of technology systems.
- Identify the computer as a machine that helps people at school, work, and play.
 - Use technology to demonstrate the ability to perform a variety of tasks; among them turning on and off a computer, starting and closing programs, saving work, creating folders, using pull-down menus, closing windows, dragging objects, and responding to commands.
- C/T K-2.2 The student will demonstrate proficiency in the use of technology.
- Demonstrate the use of mouse, keyboard, printer, multimedia devices, and earphones.
 - Use multimedia resources such as interactive books and software with graphical interfaces.

Social and Ethical Issues

- C/T K-2.3 The student will practice responsible use of technology systems, information, and software.
- Know the school's rules for using computers.
 - Understand the importance of protecting personal information or passwords.
 - Understand the basic principles of the ownership of ideas.
- C/T K-2.4 The student will use technology responsibly.
- Demonstrate respect for the rights of others while using computers.
 - Understand the responsible use of equipment and resources.

Technology Research Tools

- C/T K-2.5 The student will use technology to locate, evaluate, and collect information from a variety of sources.
- Identify information in various formats.
 - Identify available sources of information.

Computer/Technology Standards of Learning

Problem-solving and Decision-making Tools

- C/T K-2.6 The student will use technology resources for solving problems and making informed decisions.
- Recognize that technology can be used to solve problems and make informed decisions.
 - Identify and select technologies to address problems.

Technology Communication Tools

- C/T K-2.7 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
- Identify the best tool to communicate information.
 - Use technology tools for individual writing, communication, and publishing activities.
 - Demonstrate the ability to create, save, retrieve, and print document.

Computer/Technology Standards of Learning

Grades 3-5

Basic Operations and Concepts

C/T 3-5.1 The student will demonstrate knowledge of the nature and operation of technology systems.

- Discuss common uses of computers in their daily life and the advantages and disadvantages those uses provide.
- Communicate about basic technology components with appropriate terminology.

C/T 3-5.2 The student will demonstrate proficiency in the use of technology.

- Use skills and procedures needed to operate various technologies such as scanners, digital cameras and hand-held computers.
- Identify basic software applications such as word processing, databases, and spreadsheets.

Social and Ethical Issues

C/T 3-5.3 The student will demonstrate knowledge of ethical, cultural, and societal issues related to technology.

- Identify how technology has changed society in areas such as communications, transportation, and the economy.
- Discuss ethical behaviors when using information and technology.

C/T 3-5.4 The student will practice responsible use of technology systems, information, and software.

- Understand the need for the school division's acceptable use policy.
- Discuss the rationale of fair use and copyright regulations.
- Follow rules for personal safety when using the Internet.

C/T 3-5.5 The student will demonstrate knowledge of technologies that support collaboration, personal pursuits, and productivity.

- Work collaboratively when using technology.
- Practice and communicate respect for people, equipment, and resources.
- Understand how technology expands opportunities for learning.

Technology Research Tools

C/T 3-5.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.

- Collect information from a variety of sources.
- Evaluate the accuracy of electronic information sources.
- Enter data into databases and spreadsheets.

Computer/Technology Standards of Learning

Problem-solving and Decision-making Tools

- C/T 3-5.7** The student will use technology resources for solving problems and making informed decisions.
- Determine when technology tools are appropriate to solve a problem and make a decision.
 - Select resources to solve problems and make informed decisions.

Technology Communication Tools

- C/T 3-5.8** The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
- Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.
 - Use technology tools for individual and collaborative writing, communication, and publishing activities.
 - Use telecommunication tools to communicate and share information with others.

Computer/Technology Standards of Learning

Grades 6-8

Basic Operations and Concepts

- C/T 6-8.1 The student will demonstrate knowledge of the nature and operation of technology systems.
- Describe how technology impacts learning.
 - Explore how software and hardware are developed to respond to the changing needs of technology.
 - Describe compatibility issues, between various types of technology.
- C/T6-8.2 The student will demonstrate proficiency in the use of technology.
- Understand that hardware and software have different operating systems that may affect their use.
 - Use self-help features such as online tutorials and manuals to learn to use hardware and software.

Social and Ethical Issues

- C/T 6-8.3 The student will demonstrate knowledge of ethical, cultural, and societal issues related to technology.
- Demonstrate knowledge of current changes in information technologies.
 - Explain the need for laws and policies to govern technology.
 - Explore career opportunities in technology related careers.
- C/T 6-8.4 The student will practice responsible use of technology systems, information, and software.
- Demonstrate the correct use of fair use and copyright regulations.
 - Demonstrate compliance with the school division's Acceptable Use Policy and other legal guidelines.
- C/T 6-8.5 The student will demonstrate knowledge of technologies that support collaboration, personal pursuits, and productivity.
- Work collaboratively and/or independently when using technology.
 - Practice preventative maintenance of equipment, resources, and facilities.
 - Explore the potential of the Internet as a means of personal learning and the respectful exchange of ideas and products.

Computer/Technology Standards of Learning

Technology Research Tools

- C/T 6-8.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.
- Use databases and spreadsheets to evaluate information.
 - Use technology resources such as calculators and data collection probes for gathering information.
 - Use Internet and other electronic resources to locate information in real time.
- C/T 6-8.7 The student will evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
- Use search strategies to retrieve information.
 - Evaluate the accuracy, relevance, and appropriateness of electronic information sources.

Problem-solving and Decision-making Tools

- C/T 6-8.8 The student will use technology resources for solving problems and making informed decisions.
- Employ technology in the development of strategies for solving problems.
 - Use a variety of technologies to identify and provide possible solutions to real-world problems.
 - Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.
 - Participate in collaborative problem-solving activities.
 - Select and use appropriate tools and technology resources to accomplish a variety of tasks.

Technology Communication Tools

- C/T 6-8.9 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
- Choose the appropriate tool, format, and style to communicate information.
 - Independently use technology tools to create and communicate for individual and/or collaborative projects.
 - Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.

Computer/Technology Standards of Learning

Grades 9-12

Basic Operations and Concepts

C/T 9-12.1 The student will demonstrate knowledge of the nature and operation of technology systems.

- Discuss the inherent advantages and limitations of technology.
- Define the relationship between infrastructure, electronic resources, and connectivity.
- Identify and describe the impact of new and emerging technologies and their applications.

C/T 9-12.2 The student will demonstrate proficiency in the use of technology.

- Identify and resolve hardware and software compatibility issues.
- Develop and communicate strategies for solving routine hardware and software problems.

Social and Ethical Issues

C/T 9-12.3 The student will demonstrate knowledge of ethical, cultural, and societal issues related to technology.

- Assess the potential of information and technology to address personal and workplace needs.
- Demonstrate knowledge of electronic crimes such as viruses, pirating, and computer hacking.
- Explore and participate in online communities, and online learning opportunities.
- Identify the role that technology will play in future career opportunities.

C/T 9-12.4 The student will practice responsible use of technology systems, information, and software.

- Adhere to fair use and copyright guidelines.
- Adhere to the school division's Acceptable Use Policy as well as other state and federal laws.
- Model respect for intellectual property.

C/T 9-12.5 The student will demonstrate knowledge of technologies that support collaboration, personal pursuits, and productivity.

- Respectfully collaborate with peers, experts, and others to contribute to an electronic community of learning.
- Model responsible use and respect for equipment, resources, and facilities.

Computer/Technology Standards of Learning

Technology Research Tools

- C/T 9-12.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.
- Integrate databases, spreadsheets, charts, and tables to create reports.
 - Use available technological tools to expand and enhance understanding of ideas and concepts.
- C/T 9-12.7 The student will evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
- Analyze and draw conclusions about the comprehensiveness and bias of electronic information sources.
 - Design and implement a variety of search strategies to retrieve electronic information.

Problem-solving and Decision-making Tools

- C/T 9-12.8 The student will use technology resources for solving problems and making informed decisions.
- Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.
 - Select and apply technology tools for information analysis, problem-solving, and decision-making.
 - Use technology resources such as educational software, simulations, and models for problem-solving, and independent learning.
 - Produce and disseminate information through collaborative problem-solving activities.

Technology Communication Tools

- C/T 9-12.9 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
- Determine the most effective tool, format, and style to communicate to specific audiences.
 - Use technology-based options, including distance and distributed education, to collaborate, research, publish, and communicate.
 - Practice self-directed use of advanced technology tools for communicating with specific audiences.