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Colorado
Technology Competency Guidelines
for
Classroom Teachers and School Library
Media Specialists

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Colorado Technology Competency Guidelines
for
Classroom Teachers and School Library Media Specialists

This document is designed to provide guidance to school districts, BOCES and teacher training institutions regarding those technology related skills Colorado teachers, school library media specialists and other certificated staff should have in order to meet the ever changing needs of Colorado's learners. This document is the result of deliberations by a working group consisting of district and state technology experts and administrators. It draws upon their knowledge and concerns for the state of teaching and learning in Colorado schools and from national, state and local standards developed by the International Society for Technology in Education (ISTE), the North Carolina Department of Public Instruction and Jefferson County School District One (Golden, CO). The guidelines' organization has been adapted from ISTE's National Standards for Educational Technology, and the teacher competencies are taken from all three documents.

The technology skills needed by teachers and school library media specialists to help their students learn can be divided into three areas:

1. *Basic Computer/Technology Operations and Concepts* provide educators with the ability to operate computers and other tools of technology. These include operating software and storing, accessing, creating, manipulating, publishing and distributing information resources.
2. *Personal and Professional Use of Technology* provides educators with the ability to apply these tools for enhancing their own professional growth and productivity in the classroom. Skills are learned enabling educators to create, access, modify, store and distribute documents by communicating and collaborating with their peers and content experts, conducting research, and creating and publishing information resources. Also included are such management functions as tracking and reporting student achievement and recording and distributing classroom attendance.
3. *Integration of Technology into a Standards Based Curriculum* provides educators with the skills needed to enhance their instructional strategies by the application of computer and other technologies in their grade levels and subject areas. These include planning and delivering instructional units that fully utilize a standards-based approach, effective software applications and learning technologies with diverse student groups.

The following identifies Basic and Extended Skills needed by teachers, school library media specialists, and others to enhance student learning. It is understood that there may be a wide range of expertise in any given school or district. These guidelines are a target toward which teachers and staff should work. The Appendix includes more advanced skills needed by the individual(s) responsible for maintaining their school's technology infrastructure.

As the need for teachers and other staff to have specific skills is dependent upon the availability of hardware, software and telecommunications capacity, individual school districts will use these guidelines to develop proficiency indicators reflecting their local needs and realities.

Colorado Teacher Technology Competency Guidelines

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A. Basic Computer/Technology Operations and Concepts	
Essential Skills	**Extended Skills**
1 Computer Operation 1.1 Start and shut down computer system and peripherals 1.2 Identify and use icons, windows, menus 1.3 Start an application and create a document 1.4 Name, save, retrieve, revise a document 1.5 Use printing options 1.6 Insert and eject floppy disk and CD-ROM 1.7 Copy document from hard disk to floppy disk and vice versa 1.8 Save, open, place documents inside subdirectories/folders 1.9 Open and work with more than one application at a time 1.10 Exchange disks and files among platforms 1.11 Initialize, name/rename floppy disk and hard disk 1.12 Create and name/rename subdirectories/folders 1.13 Run programs from CD ROMs and network	No extended skills identified
2 Setup, Maintenance, and Troubleshooting 2.1 Protect and care for storage media 2.2 Make backup copies of documents and files 2.3 Perform standard printer upkeep (e.g.: change/add paper, ribbons, etc.) 2.4 Describe technical problems for computers, peripherals and network connections 2.5 Troubleshoot technical problems following a set of predefined instructions for computers, peripherals and network connections **Knowledge Areas:** 2.6 Proper operating environment for computer and peripherals 2.7 Protection against computer viruses 2.8 Technical assistance resources available at local level	No extended skills identified

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B. Personal and Professional Use of Technology	
Essential Skills	**Extended Skills**
3 **Word Processing/Introductory Desktop Publishing** 3.1 Enter and edit text 3.2 Cut, copy and paste text 3.3 Change format and style, set margins, line spacing, tabs, etc. 3.4 Check spelling and grammar 3.5 Create headers and footers 3.6 Insert date, time, page number 3.7 Add columns to a document 3.8 Insert tables into a document 3.9 Insert graphics into a document	3.10 Do mail merges 3.11 Use and create style sheets and templates 3.12 Import/insert data from other applications 3.13 Convert documents to PDF and HTML
4 **Spreadsheet/Graphing** 4.1 Interpret and communicate information in an existing spreadsheet 4.2 Enter data into an existing spreadsheet 4.3 Modify an existing spreadsheet 4.4 Create a spreadsheet with rows, columns, headings 4.5 Create and copy formulas and functions to perform calculations 4.6 Create a graph from spreadsheet data	4.7 Sort data 4.8 Create reports 4.9 Convert documents to PDF and HTML
5 **Databases** 5.1 Interpret and communicate information in an existing database 5.2 Add and delete records 5.3 Sort a database by specific fields 5.4 Create layouts for screen and reports	5.5 Convert documents to PDF and HTML 5.6 Create a database with multiple fields and records

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Essential Skills	Extended Skills
6 **Networking** 6.1 Use a file server (connect/log on, retrieve a program or document, save a document to a specified location) 6.2 Share files with others on a network **Knowledge Areas:** 6.3 Terms such as local area network, wide area network, access rights, security passwords, file server, zone	No extended skills identified
7 **Telecommunications** 7.1 Connect to the Internet or an on-line service 7.2 Use Internet search engines 7.3 Use a web browser to access and use resources on Internet and World Wide Web 7.4 Download and print resources from the WWW 7.5 Use URL management tools (e.g.: "bookmarks" and/or "favorite sites") 7.6 Telnet to a remote computer on the Internet 7.7 Connect to, and use resources from, the Access Colorado Library and Information Network (ACLIN) and the CDE web site 7.8 Use electronic mail (compose, send, retrieve, read, reply to sender, reply to all and forward) 7.9 Attach files to e-mail messages 7.10 Retrieve and use attachments (e.g.: view, read, save and print) 7.11 Configure and use specialized e-mail lists relevant to professional information needs 7.12 Create and use group addresses for electronic mail 7.13 Collaborate with peers through available tools (e.g.: e-mail, web sites, threaded and other on-line discussions)	7.14 Create documents for posting on the World Wide Web 7.15 Connect a computer to a modem and telephone line for dial-in access 7.16 Create classroom/instructional web pages 7.17 Utilize Internet resources "off-line" 7.18 Install and configure telecommunications software 7.19 Use FTP to send or retrieve files from remote computers 7.20 Effectively use distance learning, desktop video conferencing, and tele-teaching technologies that provide instructional and professional development opportunities to students and staff

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Essential Skills	Extended Skills
8 **Media Communications and Integration** 8.1 Set up and operate video media (e.g.: videotape recorders, laser disk players and digital video disk (DVD) 8.2 Connect video output devices and other presentation systems to computers and video sources for large screen display 8.3 Use painting, drawing and authoring tools 8.4 Plan, create and use linear and non-linear multimedia presentations 8.5 Use imaging devices such as scanners, digital cameras, and/or video cameras with computer systems and software	8.6 Produce a videotape 8.7 Use a file compression utility 8.8 Input and digitize sound from microphone and audiocassette player/recorder 8.9 Create simple animations

C: Integration of Technology into the Standards-Based Curriculum

Essential Skills	Extended Skills
9 **Curriculum** 9.1 Select and create learning experiences that are appropriate for curriculum goals, relevant to learners, based upon principles of effective teaching and learning, incorporate the use of media and technology for teaching where appropriate, and support learner expression in a variety of media using a variety of media communication tools 9.2 Utilize Colorado's Information Literacy Guidelines to assist students in accessing, understanding and using information resources 9.3 Develop and use lesson plans, which advance students' place in the continuation of technical skills 9.4 Access resources for planning and instruction via the Internet and other telecommunications channels (e.g., experts, lesson plans, authentic data, curriculum materials) 9.5 Locate, evaluate, and select appropriate teaching/learning resources and curriculum materials for the content area and target audience, including computer-based products, videotapes and discs, local experts, primary documents and artifacts, texts, reference books, literature, and other print sources	No extended skills identified

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Essential Skills	Extended Skills
10 Design And Management Of Learning Environments And Resources 10.1 Develop performance tasks that require students to (a) locate and analyze information as well as draw conclusions and (b) use a variety of media to communicate results clearly 10.2 Use computers and other technologies effectively and appropriately to collect information on student learning using a variety of methods 10.3 Use computers and other technologies effectively and appropriately to communicate information in a variety of formats on student learning to colleagues, parents, and others **Knowledge Areas:** 10.4 Physical settings that support active student involvement, inquiry, and collaboration 10.5 Organizational and management strategies that support active student involvement, inquiry, and collaboration 10.6 Resources available including videotapes, satellite TV, cable TV, community information systems and wireless networks	No extended skills identified
11 Child Development, Learning And Diversity 11.1 Use media and technology to address differences in children's learning and performance 11.2 Use media and technology to support learning for children with special needs 11.3 Use media and technology to support learning for children whose primary language is not English 11.4 Use appropriate local, state, and national services or resources to meet diverse learning needs through technology **Knowledge Areas:** 11.5 Understand that modifications in computers and input and output devices are possible to enable all individuals, regardless of their disabilities, to create, manipulate, store and distribute information	No extended skills identified

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Essential Skills	Extended Skills
12 <u>**Social, Legal, And Ethical Issues**</u> 12.1 Follow school district policies, procedures and federal law to ensure compliance with copyright law and fair-use guidelines 12.2 Follow school district policies and procedures to ensure students safety 12.3 Practice responsible, ethical, and legal use of technical information and software resources 12.4 Ensure equal access to media and technology resources for students regardless of race, ethnicity, gender, religion or social-economic status	No extended skills identified

Appendix

13   <u>**Building Level Technical Support**</u>

13.1 Setup computer system and connect peripheral devices
13.2 Clean computer components and printers
13.3 Install/reinstall and update system software and printer drivers
13.4 Use system software to make memory available
13.5 Use self-help resources to diagnose and correct common hardware/printing problems; understand basic computer set-up configuration and troubleshoot
13.6 Add users to network server
13.7 Maintain local area network (LAN)
13.8 Install, reinstall and upgrade applications software

Knowledge Areas:
13.9 Understand the design and configuration of local are network (e.g.: IP addresses and server names)