

# **Computer/ Technology Skills**



## **Standard Course of Study and Grade Level Competencies 3-5**

**Public Schools of North Carolina  
Department of Public Instruction**

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# ***K-12 Computer/Technology Skills***

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We wish to express special thanks to the Computer/Technology Skills Core Revision Committee for providing the leadership and vision that guided the development of these materials. The untiring efforts of the members of this group contributed greatly to the completion of this task:

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- The office support staff who provided assistance to the committee.
- The Developers of the *ISTE National Educational Technology Standards for Students (NETS\*S)* for permission to use the Profiles of a Technology Literate And NETS\*S Goals in this document. <sup>1</sup>
- The Division of Communications Services for technical assistance in the editing and formatting this publication.

The current revision process involved on some level the entire education community, and its end product is a North Carolina curriculum of which the state can be justifiably proud. We will continue to revise and improve the Standard Course of Study to meet the needs of the children of North Carolina.




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## Preface

### General Principles

The *Computer/Technology Skills Standard Course of Study* describes the progressive development of knowledge and skills in six strands: Societal and Ethical Issues, Database, Spreadsheet Keyboard Utilization/Word Processing/Desktop Publishing, Multimedia/Presentation, and Telecommunications/Internet.

- In the primary grades, the objectives focus on the essential skills.
- In the upper elementary and middle grades, the objectives build upon and reinforce those skills through application and use in content area assignments/projects. During the eighth grade, students should be prepared to successfully pass the computer proficiency assessment required for graduation.
- In grades 9-12, the objectives focus on the application, refinement, and transfer of knowledge and skills to be used in content area assignments, in preparation for work, continued learning, and personal use. Objectives at these grade levels are organized by subject area, allowing students to employ, expand, and internalize the proficiencies they have already developed.

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### Revision Process

The revision process began in August 2002. North Carolina educators, through an online discussion forum, survey, focus groups, and teleconference, evaluated the *Computer/Technology Skills Standard Course of Study*. The Computer/Technology Skills Core Revision Committee reviewed the input and recommended that revisions be made. At its October 2002 meeting, the State Board of Education approved a revision of the telecommunications strand, with particular emphasis on personal safety and responsible and ethical behavior in the use of technology resources and information.

From October 2002 until the present the Computer/Technology Skills Core Revision Committee has been working on the revision of the *K-12 Computer/Technology Skills Standard Course of Study*.

Educators from across the state have provided input and feedback to draft documents 1-10 in a variety of ways:

- Online surveys (467 responses)
  - Focus group sessions (24 sessions with 565 participants)
  - Public hearing November 24, 2003, Raleigh
  - Formal/informal sessions (ongoing)
  - Drafts of the *K-12 Computer/Technology Skills Standard Course of Study* document were posted on the Instructional Services website beginning in September 2002 to the present
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<http://www.learnnc.org/dpi/instserv.nsf/8b9d5b45cd868314052564e5005703ff/7b55e0789abb9ca585256dc1005c7833?OpenDocument>

- Quicktopic Discussion Forum has been available for all who wanted to participate in the on-going discussion. URL <http://www.quicktopic.com/13/H/PPsX64g6eUmH/p-1.-1>

**Focus Groups** () indicates number of events in a given location

- Technology Coordinators, Wake County Public Schools (2)
- MEGA Meeting, Leesville Middle School, Wake (1)
- NCAECT Conference (2)
- SW RESA Elem. Supervisors (1)
- SW RESA, Middle School & High School Coordinators (1)
- Kenansville/Duplin ENTech Center (1)
- Southeastern Region Teaching & Technology Conference, Greenville (1)
- Williamston/Martin ENTech Center (1)
- Moore ENTech Center (1)
- Technology and Learning Seminar, UNCG (1)
- Western Region Meeting (3)
- Northeast Region, Guilford (1)
- Eastern Regional, Bertie (1)
- Southwestern Region, Albemarle (1)
- Nortel Networks Focus Group, RTP (1)
- Public Hearing, Raleigh (1)
- NC Educational Technology Conference, Focus Group, Greensboro (2)

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**Input/  
Suggestions  
And Concerns**

Suggestions and input provided to the Computer/Technology Skills Core Revision Committee from teachers, administrators, parents, business, and community were the following:

- Make objectives clear.
- Make organization of document clear and easy to use.
- Provide sample activities for each objective by grade level.
- Write objectives in language to encourage integration into content areas.
- Encourage collaboration among all classroom teachers, computer coordinators, media coordinators to support instructional use of technology.
- Focus attention on Copyright Law and Acceptable Use Policy/Internet Use Policy (AUP/IUP) issues.
- Telecommunications/Internet includes tools for collaboration.
- Align document to *National Educational Technology Standards for Students*.
- Identify terms/concepts.

All suggestions were discussed, reviewed, and incorporated into draft documents by the Core Revision Committee.

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**Revisions  
to Document**

**Societal/Ethical Issues Strand**

- Respect for the work of others – security, privacy, passwords, personal
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information.

- Responsible, safe and ethical behaviors online.
- Trouble-shooting common hardware/software problems/issues.

**Revisions  
to Document  
Con't.**

**Telecommunications/Internet Strand**

- Safe, responsible, and ethical behavior online.
- Evaluating quality of resources and information online
- Collaborative tools.
- Advantages and limitations of collecting/disseminating information/ideas online.

**Multimedia/Presentation Strand**

- Personal Safety Issues – when developing, selecting, and using personal information, images, and content in presentations/online.
- 

**Features**

This SCS is based on the 1998 *K-12 Computer/Technology Skills Standard Course of Study*. Four of the six topic strands address objectives from the 1998 document using precise language with examples. The Societal/Ethical Issues and Telecommunications topic strands have been refined and enhanced.

- Objectives are stated in clear, precise language.
  - Terms/concepts are identified in objectives.
  - Organization of document is clear and easy to use (Matrices/charts).
  - Objectives encourage integration with content areas at all levels.
  - Encourages collaboration among all classroom teachers, computer coordinators, media coordinators to support instructional use of technology,
  - Focuses on personal safety, ethical use of resources and information-- Copyright Law and (AUP/IUP) issues.  
Encourages use of Telecommunications/Internet collaboration tools.
  - Aligns *North Carolina Computer/Technology Skills Competency Goals* with *National Educational Technology Standards for Students (NETS\*S)* and *profiles of Technology Literate Students* by end of grade 2, 5, 8, and 12.<sup>2</sup>
  - Each Strand follows the same pattern from grade to grade. See **Chart A** on page **7A**
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# Philosophy

**The strength of technology is that it provides an excellent platform where students can collect information in multiple formats and then organize, link, and discover relationships between facts and events. An array of tools for acquiring information and for thinking and expression allows more students more ways to enter the learning enterprise successfully and to live productive lives in the global, digital, and information-based future they all face.<sup>3</sup>**

The *K-12 Computer/Technology Skills Standard Course of Study* identifies the essential knowledge and skills that all students need to be active, lifelong learners in a technology intensive environment. Technology is undergoing rapid change, and new and improved technological advances appear almost daily. The curriculum is designed to form the foundation for continuous learning and to be applicable to ever-changing innovations.

In 1995, the State Board of Education published *The New ABCs' of Public Education*, its plan for restructuring education in our state. The B in the *ABCs'* focuses instruction on the basics—specifically the mastery of reading, mathematics, and writing. Computer/technology skills represent a new “basic”. When integrated with the core curricular areas, these skills enable students to improve and enhance their learning of the other basic skills.<sup>4</sup>

The *Computer/Technology Skills Standard Course of Study* involves the development of skills over time. Computer/Technology Skills proficiency is not an end in itself, but lays a foundation for lifelong learning. These skills become building blocks with which to meet the challenges of personal and professional life. To become technologically proficient, the student must develop the skills over time, through integrated activities in all content areas K-12, rather than through one specific course. These skills are necessary for all students and should be introduced and refined collaboratively by all K-12 teachers as an integral part of the learning process.

**Chart B** illustrates the alignment of North Carolina K-12 Computer/Technology Skills Competency Goals and how they relate to the *ISTE National Educational Technology Standards for Students (NETS\*S)*. See **Chart B** on page 9.

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<sup>3</sup>Statham, Dawn S., and Torell, Clark R. *Computers in the Classroom: The Impact of Technology on Student Learning*, Boise State University College of Education, p. 10.

<sup>4</sup> *The New ABC's of Public Education*, May, 1995., p. 5



**Chart B**

North Carolina Competency Goals	<i>ISTE National Educational Technology Standards for Students NETS*S</i>
<p><b>COMPETENCY GOAL 1:</b> The learner will understand important issues of a technology-based society and will exhibit ethical behavior in the use of computer and other technologies.</p>	<p>1. Basic operations and concepts</p> <ul style="list-style-type: none"> <li>• Students demonstrate a sound understanding of the nature and operation of technology systems.</li> <li>• Students are proficient in the use of technology.</li> </ul>
	<p>2. Social, ethical, and human issues</p> <ul style="list-style-type: none"> <li>• Students understand the ethical, cultural, and societal issues related to technology.</li> <li>• Students practice responsible use of technology systems, information, and software.</li> <li>• Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.</li> </ul>
<p><b>COMPETENCY GOAL 2:</b> The learner will demonstrate knowledge and skills in the use of computer and other technologies.</p>	<p>3. Technology productivity tools</p> <ul style="list-style-type: none"> <li>• Students use technology tools to enhance learning, increase productivity, and promote creativity.</li> <li>• Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.</li> </ul>
	<p>4. Technology communications tools</p> <ul style="list-style-type: none"> <li>• Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.</li> <li>• Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.</li> </ul>
<p><b>COMPETENCY GOAL 3:</b> The learner will use a variety of technologies to access, analyze, interpret, synthesize, apply, and communicate information.</p>	<p>5. Technology research tools</p> <ul style="list-style-type: none"> <li>• Students use technology to locate, evaluate, and collect information from a variety of sources.</li> <li>• Students use technology tools to process data and report results.</li> <li>• Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.</li> </ul>
	<p>6. Technology problem-solving and decision-making tools</p> <ul style="list-style-type: none"> <li>• Students use technology resources for solving problems and making informed decisions.</li> <li>• Students employ technology in the development of strategies for solving problems in the real world.<sup>5</sup></li> </ul>

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# Organization of Curriculum

The first separate *Computer Skills Standard Course of Study* was approved by the State Board of Education in 1992. This 2004 revision represents a refinement of the competencies to reflect current technologies and to incorporate future technological developments. The three Competency Goals are unchanged from those adopted for the *1992 Standard Course of Study*. Competency Goals 1 and 2 generally apply in grades K-12. Competency Goal 3 is at the application of skills level and does not apply in grades K-2.

**COMPETENCY GOAL 1: The learner will understand important issues of a technology-based society and will exhibit ethical behavior in the use of computer and other technologies.**

*This goal addresses the role of technology in society now and in the future. Students must understand the impact of computer technology on information management, job skills needed in the work place, communications, transportation, education, healthcare, and personal information needs. Students must understand issues of personal safety, responsible, and ethical use of technology resources and information. Students must be able to adapt and transfer knowledge and skills. Students must be able to evaluate resources and information for content and usefulness. Students must be able to select and use most appropriate technology tools and resources to meet their needs.*

**COMPETENCY GOAL 2: The learner will demonstrate knowledge and skills in the use of computer and other technologies.**

*This goal is concerned with fundamental computer operations and application software use that make students independent, productive, users of computer technology. Students must master certain computer operations, application software skills, know computer terms and functions, demonstrate basic keyboarding skills, and be able to use software correctly. The application software skills identified include word processing, database management, spreadsheet, multimedia production, and Telecommunications/Internet. Knowledge and skills that can be adapted and transferred as technology changes and evolves overtime.*

**COMPETENCY GOAL 3: The learner will use a variety of technologies to access, analyze, interpret, synthesize, apply, and communicate information.**

*This goal focuses on the application of computer/technology skills. Students will access information using search strategies and analyze information using database, spreadsheet, and graphing software. They will then communicate and share findings in a variety of ways (e.g., desktop publishing, multimedia, video-conferencing, telecommunications) with audiences near and far.*

The objectives under each of the three goals in the revised *K-12 Computer/Technology Skills Standard Course of Study* describes the progressive development of knowledge and skills in six

strands: Societal/Ethical Issues, Database, Spreadsheet, Keyboard Utilization/Word Processing/Desktop Publishing, Multimedia/Presentation, and Telecommunications/Internet. The number at the end each individual objective denotes the Strand. Each Strand follows the same pattern from grade to grade. See **Chart A** page 7A. In the primary grades, the objectives focus on the essential skills; in the upper elementary and middle grades, the objectives build upon those skills. During the eighth grade, students should be prepared to successfully pass the computer proficiency assessment required for graduation.

It is important to note, however, that they may not have acquired all of the keyboarding proficiency required as a prerequisite for workforce development courses. At grades 9-12, the *Standard Course of Study* focuses on the refinement and application of the acquired computer/technology skills in preparation for work, continued learning, and personal use. The objectives at these grade levels are organized by subject area, allowing students to employ, expand, and internalize the proficiencies that they have already developed.

## Instructional Support Materials

Work on integration strategies support materials is in progress. Support materials (e.g., datafiles, activities, resource links) for the revised curriculum will be posted on the *Computer/Technology Skills Instructional Resources* webpage as they are completed. Also this webpage will be linked to materials resident on LEA websites, if permission is granted. This process allows the instructional materials to be dynamic, expandable, monitored, and updated by the original developer as needed.

All materials and resources will be posted on the Instructional Services webpage <http://www.learnnc.org/dpi/instserv.nsf> and the NCDPI Infoweb <http://www.dpi.state.nc.us> as soon as possible.



***STANDARD COURSE OF STUDY***  
**K-12 Computer/Technology Skills**

## Computer/Technology Skills - Grade 3

### Focus Areas

- Awareness of Copyright Law
- Responsible and safe use of resources
- Exploring information technologies
- Building word processing techniques
- Using multimedia tools
- Exploring spreadsheets

**Strands:** 1= Societal/Ethical Issues; 2 = Database; 3 = Spreadsheet; 4= Keyboard Utilization/Word Processing/Desk Top Publishing; 5 = Multimedia/Presentation; 6 = Telecommunications/Internet

**COMPETENCY GOAL 1: The learner will understand important issues of a technology-based society and will exhibit ethical behavior in the use of computer and other technologies.**

### Objectives:

- 1.01 Identify, discuss, and chart uses of technology in the community (e.g., farmers, grocery, restaurant, veterinarian, medical and emergency services). 1
- 1.02 Identify the function of common computing devices (e.g., input, output, processing). 1
- 1.03 Recognize, discuss, and use responsible and safe behavior in the use of technology resources. 1
- 1.04 Demonstrate knowledge of individual's rights of ownership of created works by citing sources. 1
- 1.05 Identify, discuss, and visually represent uses of databases in the community (e.g., school, grocery, pharmacy, business) to collect, organize, and display information. 2
- 1.06 Identify, discuss, and use database terms (e.g., data entry, field, record, list, sort, search/filter, keyword). 2
- 1.07 Recognize spreadsheets as a tool to organize, calculate, and graph information to make predictions. 3
- 1.08 Identify and discuss spreadsheet terms/concepts (e.g., cell, column, row, values, labels, chart, graph). 3
- 1.09 Identify and use formatting terms/concepts (e.g., font size/style, line spacing, margins, italic). 4
- 1.10 Recognize that Copyright Laws protect creative works of individuals/groups/companies. 4

### Computer/Technology Skills - Grade 3

- 1.11 Identify and discuss guidelines for media (e.g., personal information, images, content, language) to consider in developing multimedia projects as a class. 5
- 1.12 Identify and discuss Copyright and Fair Use Guidelines as a class. 5
- 1.13 Identify and discuss use of rubrics to define and evaluate elements (e.g., content, purpose, usefulness) of class multimedia projects. 5
- 1.14 Identify, discuss, and use terms/concepts (e.g., web browser, URL, keyword, search engine, weblinks). 6
- 1.15 Recognize, discuss, and demonstrate responsible and safe online behavior as a class/group. 6
- 1.16 Cite sources of information (print and nonprint) for a class project. 6
- 1.17 Identify and discuss collaborative tools (e.g., email, messaging, videoconferencing). 6

#### **COMPETENCY GOAL 2: The learner will demonstrate knowledge and skills in the use of computer and other technologies.**

##### **Objectives:**

- 2.01 Select and use appropriate features and functions of hardware and software for class assignments. 1
- 2.02 Discuss and select appropriate technology tools (e.g., probeware, digital cameras, handhelds) to collect, analyze, and display data. 1
- 2.03 Use prepared databases to search/filter and sort alphabetically/numerically in ascending/descending order. 2
- 2.04 Modify prepared databases to enter/edit additional information and cite the source. 2
- 2.05 Plan, discuss, and use keyword search/filter using one criterion in prepared databases. 2
- 2.06 Enter/edit data in a prepared spreadsheet to perform calculations. Identify and discuss the changes that occur as a class/group. 3
- 2.07 Demonstrate correct finger placement for home row keys. 4
- 2.08 Use menu/tool bar functions (e.g., font size/style, line spacing) to format and change the appearance of word processing documents as a class/group. 4e
- 2.09 Identify, discuss, and use multimedia tools (e.g., capture, create, edit, publish). 5
- 2.10 Modify/edit an existing multimedia project to include branching and identify added sources as a class. 5
- 2.11 Investigate teacher-selected Internet resources about communities; discuss and compare findings for usefulness as a class. 6

## Computer/Technology Skills - Grade 3

**COMPETENCY GOAL 3: The learner will use a variety of technologies to access, analyze, interpret, synthesize, apply, and communicate information.**

**Objectives:**

- 3.01 Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets; identify and cite sources. 3
- 3.02 Enter/edit data in a prepared spreadsheet to perform calculations and determine which graph best represents the data as a class/group. 3
- 3.03 Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories. 4
- 3.04 Identify, discuss, and use multimedia to present ideas/concepts/information in a variety of ways as a class. 5



## Computer/Technology Skills - Grade 4

### Focus Areas

- Using databases
- Using spreadsheets
- Responsible and safe use of online resources
- Locating information on the Internet
- Evaluating information found through telecommunications
- Developing word processing documents
- Exploring e-mail
- Identifying ways technology has changed North Carolina

**Strands:** 1= Societal/Ethical Issues; 2 = Database; 3 = Spreadsheet; 4= Keyboard Utilization/Word Processing/Desk Top Publishing; 5 = Multimedia/Presentation; 6 = Telecommunications/Internet

**COMPETENCY GOAL 1: The learner will understand important issues of a technology-based society and will exhibit ethical behavior in the use of computer and other technologies.**

### Objectives:

- 1.01 Identify, discuss, and visually represent ways technology has changed the lives of people in North Carolina. 1
- 1.02 Recognize, discuss, and use network terms/concepts (e.g., stand alone, network, file server, LANs, network resources). 1
- 1.03 Recognize, discuss, and use responsible, ethical, and safe behaviors when using technology resources (AUP/IUP). 1
- 1.04 Recognize that Copyright Laws protect creative work of individuals/groups/companies by citing sources. 1
- 1.05 Identify and discuss the benefits of non-networked and networked computers. 1
- 1.06 Explore and discuss occupations/careers that use computers/technology tools in North Carolina. 1
- 1.07 Identify, discuss, and visually represent how and why databases are used in North Carolina (e.g., schools, government, business, and science) to collect and organize information. 2
- 1.08 Identify and discuss how spreadsheets are used to calculate and graph data in a variety of settings (e.g., schools, government, business, industry). 3
- 1.09 Recognize and discuss the importance of citing sources of copyrighted materials in documents. 4
- 1.10 Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class. 4



## Computer/Technology Skills - Grade 4

- 1.11 Identify and discuss the use of multimedia tools to report content area information. 5
- 1.12 Recognize, discuss, and use multimedia terms/concepts (e.g., navigation buttons, transitions, links/hyperlinks, animation). 5
- 1.13 Recognize, discuss, and use Copyright and Fair Use Guidelines in multimedia projects by explaining selection and use of resources as a class. 5
- 1.14 Recognize and discuss telecommunications terms/concepts (e.g., browser, keyword, URL, hypertext, www). 6
- 1.15 Recognize, discuss, and model responsible and safe behavior using online resources as a class/group/individual. 6

### **COMPETENCY GOAL 2: The learner will demonstrate knowledge and skills in the use of computer and other technologies.**

#### **Objectives:**

- 2.01 Sort and search/filter a prepared content area database for information and use correct terms/concepts to explain strategies used as a class activity. 2
- 2.02 Plan and use two criteria to search/filter prepared databases to locate and organize information for content assignments. 2
- 2.03 Identify, discuss, and use the spreadsheet terms/concepts (e.g., cell, column, row, values, labels, graph, formula). 3
- 2.04 Enter/edit data in prepared spreadsheets to perform calculations using simple formulas (+, -, \*, /) and observe the changes that occur. 3
- 2.05 Use spreadsheets and graphs to organize, calculate, and display data in content areas. 3
- 2.06 Identify, discuss, and use terms/concepts of menu/tool bar (e.g., print preview, WYSIWIG, page setup, Spell Check, thesaurus) in word processing documents as a class. 4
- 2.07 Recognize, discuss, and use proper keyboarding techniques. 4
- 2.08 Use menu/tool bar features (e.g., print preview, Spell Check, thesaurus) to edit and make corrections to documents as a class/group activity. 4
- 2.09 Recognize and discuss guidelines for media (e.g., personal information, images, content, language) to consider in developing multimedia projects as a class/group. 5
- 2.10 Storyboard and modify multimedia projects with menus, branching and/or multiple outcomes for content areas, citing sources as a group activity. 5
- 2.11 Recognize, discuss, and use rubrics to evaluate elements (e.g., content, organization, appropriateness of materials, citations) of multimedia projects/products. 5

## Computer/Technology Skills - Grade 4

- 2.12 Plan, discuss, and use search strategies with two or more criteria to find information online about North Carolina as a class/group. 6
- 2.13 Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing) to collect data for content area assignments/projects. 6

### **COMPETENCY GOAL 3: The learner will use a variety of technologies to access, analyze, interpret, synthesize, apply, and communicate information.**

#### **Objectives:**

- 3.01 Select and use technology tools (e.g., probeware, digital camera, scanners) to collect, analyze, and display information for content assignments. 1
- 3.02. Use databases to analyze and evaluate information in content areas and cite sources. 2
- 3.03 Discuss, plan, and develop simple databases in content area to enter/edit, collect, organize, and display content data as a class. 2
- 3.04 Enter data into prepared spreadsheets and select graph to best represent data and cite sources of data. 3
- 3.05 Use spreadsheet data and graphs to make predictions, solve problems, and make decisions in content areas as a class/group. 3
- 3.06 Use word processing as a tool for writing, editing, and publishing paragraphs, stories, and assignments. 4
- 3.07 Locate, select, organize, and present content area information from the Internet for a specific purpose and audience, citing sources. 6
- 3.08 Use a rubric as a guide to select, evaluate digital resources and information for content and usefulness in content area assignments as a class. 6



## Computer/Technology Skills - Grade 5

### Focus Areas

- Using search strategies
- Responsible and safe use of online resources
- Awareness of Copyright and Fair Use Guidelines
- Exploring the need for protection against viruses and vandalism
- Participating in curriculum-based telecommunication projects
- Developing word processing document using proper keyboarding techniques
- Developing multimedia presentation citing sources
- Developing a product using a database
- Evaluating resources and information for accuracy and usefulness
- Selecting and using a variety of technology tools

**Strands:** 1= Societal/Ethical Issues; 2 = Database; 3 = Spreadsheet; 4= Keyboard Utilization/Word Processing/Desk Top Publishing; 5 = Multimedia/Presentation; 6 = Telecommunications/Internet

**COMPETENCY GOAL 1: The learner will understand important issues of a technology-based society and will exhibit ethical behavior in the use of computer and other technologies.**

### Objectives:

- 1.01 Recognize, discuss, and visually represent changes in information technologies and the impact changes have in schools, workplace, and society in the United States. 1
- 1.02 Recognize, discuss, and use terms/concepts related to the protection of computers, networks and information (e.g., virus protection, network security, passwords, firewalls, privacy laws). 1
- 1.03 Recognize, discuss and use appropriate behavior related to computers, networks, digital information (e.g., security, privacy, passwords, personal information), and identify possible consequences of unethical behavior. 1
- 1.04 Recognize and discuss how Copyright Laws protect ownership of intellectual property and discuss consequences of misuse. 1
- 1.05 Recognize and discuss methods used to protect computers, networks, and information from viruses, vandalism and intrusion. 1
- 1.06 Identify and discuss appropriate technology tools (virus software) to protect computers, networks, and information from vandalism and intrusion. 1
- 1.07 Explore and discuss occupations/careers that use computers/technology as a class/group. 1
- 1.08 Recognize and discuss how and why databases are used in society. 2

## Computer/Technology Skills - Grade 5

- 1.09 Recognize, discuss, and explore how spreadsheets are used to calculate, graph, and represent data in a variety of settings (e.g., schools, government, business, industry, mathematics, science). 3
- 1.10 Recognize and explain the advantages and disadvantages of using word processing to create content area projects/products. 4
- 1.11 Demonstrate appropriate use of copyrighted materials in word processing documents used for content projects/assignments. 4
- 1.12 Recognize and explain the advantages and disadvantages of using multimedia to develop content area projects/products. 5
- 1.13 Identify and discuss multimedia terms/concepts (e.g., menu, branching, navigation, multimedia, design). 5
- 1.14 Demonstrate knowledge of Copyright and Fair Use Guidelines by explaining selection and use of resources in content projects/assignments. 5
- 1.15 Recognize, discuss, and use online terms/concepts (e.g., search strategies, citing resources, filters, AUP/IUP). 6

### **COMPETENCY GOAL 2: The learner will demonstrate knowledge and skills in the use of computer and other technologies.**

#### **Objectives:**

- 2.01 Use knowledge of database terms/concepts and functions to find information in prepared content area databases and describe strategies used. 2
- 2.02 Cite sources of information from content area databases used in assignments. 2
- 2.03 Create/modify simple content area databases to enter/edit, collect, organize, and display content data for class/group assignment/project, citing resources. 2
- 2.04 Use spreadsheet terms/concepts and functions (e.g., median, range, mode) to calculate, represent, and explain content area assignments. 3
- 2.05 Modify/create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, \*, /, average). 3
- 2.06 Create/modify simple content area spreadsheets to enter/edit, calculate, organize, and display content data for class/group assignment/project, citing resources. 3
- 2.07 Identify, discuss and use WP/DTP menu/tool bar terms/concepts (e.g., import, portrait, landscape, copy and paste between two documents) to describe assignments/projects. 4
- 2.08 Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation. 4
- 2.09 Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet/database as a class/group. 4

## Computer/Technology Skills - Grade 5

- 2.10 Select and use WP/DTP menu/tool bar features to edit/revise and change existing documents/projects/assignments. 4
- 2.11 Use menus and branching to modify/create non-linear projects/products in content areas. 5
- 2.12 Use student-generated rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, presentation, citation). 5
- 2.13 Plan, discuss, and use search strategies with two or more criteria to find information for assignments/projects/products about the Western Hemisphere. 6
- 2.14 Model and explain the importance of ethical, responsible, and safe behavior when using networked digital information (e.g., Internet, mobile phone, wireless, LANs). 6
- 2.15 Select, discuss and evaluate digital resources and information for content, accuracy, usefulness and cite sources. 6
- 2.16 Recognize, discuss, and/or use email/videoconferencing/webconferencing as a means of interactive communications. 6

### **COMPETENCY GOAL 3: The learner will use a variety of technologies to access, analyze, interpret, synthesize, apply, and communicate information.**

#### **Objectives:**

- 3.01 Select and use search strategies with two or more criteria in prepared databases to locate, organize, and present information for content area assignments. 2
- 3.02 Use content area databases to analyze, evaluate, organize, and compare information for assignments. 2
- 3.04 Cite sources of copyrighted data used in spreadsheets to analyze, interpret, and display findings in content areas. 3
- 3.05 Enter/edit data into a spreadsheet to test simple “what if…” statements to solve problems and make decisions in content area. 3
- 3.06 Recognize, discuss, and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language) in multimedia projects and presentations as a class/group. 5
- 3.07 Use evaluation tools to select Internet resources and information for content and usefulness in content area assignments. 6

**NETS\*S National Educational Technology Standards for Students  
Profiles for Technology Literate Students**

**PERFORMANCE INDICATORS FOR TECHNOLOGY—LITERATE STUDENTS  
GRADES 3-5**

**All students should have opportunities to demonstrate the following performances.**

**Prior to completion of Grade 5, students will:**

1. Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. (1)
2. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1, 2)
3. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. (2)
4. Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. (3)
5. 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)
6. Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning, and pursue personal interests. (4)
7. 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)
8. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5, 6)
9. Determine which technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6)
10. Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources. (6)<sup>6</sup>  
( ) indicates NETS\*S Goal(s))

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# GLOSSARY

<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>Application/Software</b>	Programs that allow to you accomplish certain tasks such as write letters, analyze numbers, sort files, manage finances, draw pictures, and play games.	K-8	ALL
<b>Arrow keys</b>	The keys on computer keyboard used to move the cursor up, down, left, or right on your screen.	K-8	ALL
<b>AUP Acceptable Use Policy</b>	A set of rules and guidelines that are set up to regulate Internet use and to protect the user.	K-8	SI
<b>CPU (Central Processing Unit)</b>	The main chip that allows computers to do millions of calculations per second and makes it possible for users to write letters and balance your checkbook.	K-8	SI
<b>Cursor</b>	This is where the action is located on your screen, represented by a flashing line. When you type on your keyboard, the information appears at the cursor.	K-8	ALL
<b>Delete</b>	A key used to erase characters.	K-8	DTP
<b>Enter/Return</b>	The key used to begin a new line in a word processor, or to enter information into a spreadsheet. It is the same as clicking OK in a dialog box.	K-8	ALL
<b>Hardware</b>	Part of the computer system such as a keyboard, screen, mouse, joystick, printer, speakers, etc.	K-8	ALL
<b>Keyboard</b>	The hardware device used to enter letters into the computer.	K-8	ALL
<b>Monitor</b>	The device with a screen used to show computer images.	K-8	SI
<b>Mouse</b>	A tool used to move the cursor and pointer around the screen.	K-8	SI
<b>Multimedia</b>	To use a combination of text, pictures, sounds, movies, and/or animation in a presentation.	K-8	MM
<b>Numeric Keypad</b>	The portion of a keyboard, set up like an adding machine or calculator used to enter numbers and equations quickly into the computer.	K-8	ALL
<b>Online Safety</b>	Precautions taken to protect personal information and images from being misused by others.	K-8	SI
<b>Password</b>	A code for the security protection to allow access to a computer or the computer programs.	K-8	SI
<b>Printer</b>	A hardware device used to make a paper copy of what is created on the computer.	K-8	SI
<b>Software/Application</b>	Programs that allow you to accomplish certain tasks such as write letters, analyze numbers, sort files, manage finances, draw pictures, and play games.	K-8	ALL

<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>Stand Alone Computer</b>	A computer that does not rely upon any other computer or server to work.	K-8	SI
<b>Text</b>	Words on a page.	K-8	ALL
<b>Vandalism</b>	The intentional act of destroying computer files or computer networks.	K-8	SI
<b>Highlight or Select</b>	To choose part of a document by clicking and dragging over it with the mouse to highlight the text.	1-8	DTP
<b>Internet</b>	Term given to the network of computers that provide information world-wide.	1-8	T
<b>Select or Highlight</b>	To choose part of a document by clicking and dragging over it with the mouse to highlight the text.	1-8	DTP
<b>Word processing</b>	Using keyboarding skills to produce documents such as letters, reports, manuals, and newsletters.	1-8	DTP
<b>Bar graph</b>	One type of graph developed from spreadsheet data that uses parallel bars to compare data and changes in data over time.	2-8	SS
<b>Button bar</b>	A horizontal strip of buttons near the top of a window. It provides shortcuts for commonly used commands. Some programs let you choose to hide or display the button bar, and mix and match buttons to customize a button bar. Also known as a toolbar.	2-8	ALL
<b>Buttons</b>	A hot spot used in multimedia applications to navigate from one place to another or to activate elements (e.g., sound, movies, animation).	2-8	MM
<b>Chart</b>	A way to present information from a spreadsheet in the form of graphs or tables.	2-8	SS
<b>Clip art</b>	Drawings you can add to your documents or presentations. Clip art includes items such as cartoons, maps, symbols, and flags. Some software packages include clip art. Clip art can be purchased separately.	2-8	DTP
<b>Database</b>	Software application that helps manage large collections of information. A simple database might be a single file containing many records, with the same set of fields. Data can be sorted and searched by one or more criteria.	2-8	DB
<b>Desktop</b>	The background on the windows, menus, and dialog boxes on a PC. It is supposed to represent a desk.	2-8	ALL
<b>Desktop publishing</b>	Using features of word processing/DTP software to format and produce documents, letters, reports, flyers, and newsletters with graphics.	2-8	DTP
<b>Graph</b>	A picture shows the relationship of one or more sets of numbers to each other. Some graph types are line, bar, area, and pie graphs.	2-8	SS
<b>Home row</b>	Keys on the keyboard with fingers of the left hand are on A-S-D-F and fingers on the right hand on J-K-L-;	2-8	DTP



<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>Host</b>	The name given to a computer directly connected to the Internet. Host computers are associated with computer networks, online services, or bulletin board systems.	2-8	T
<b>Pictogram</b>	Pictures used to create a bar graph chart	2-8	SS
<b>Print</b>	To put what is on the computer screen on paper. It creates a paper copy of the document created on the computer.	2-8	ALL
<b>Retrieve</b>	Open a saved document.	2-8	DB
<b>Sort</b>	Arranging information in a specific order (usually ascending and descending).	2-8	DB, SS
<b>Storyboard</b>	A graphic organizer used for planning and developing a multimedia report/presentation. The contents, layout, and formatting of each card/slide and the linking together of the cards/slides.	2-8	MM
<b>Telecommunication</b>	The act of sending and receiving information, such as data, text, pictures, voice, and video. The exchange of information can be within a building or around the globe.	2-8	T
<b>Word wrap</b>	This occurs when you get to the end of a line and continue typing the text will then go to the next line.	2-8	DTP
<b>Active cell</b>	The thick-bordered cell where you can enter numbers or formulas in a spreadsheet.	3-8	SS
<b>Alignment</b>	How your text conforms to the left and right margins of a page. The text can be right-aligned, centered, left-aligned, or fully-aligned/justified.	3-8	ALL
<b>Application</b>	Program or software.	3-8	SI
<b>Axis</b>	A feature of a chart, on which you can plot numbers. The horizontal line is called the X-axis, and the vertical line is called the Y-axis.	3-8	SS
<b>Bold</b>	A style of text that makes a letter or word darker and thicker to stand out in a document.	3-8	DTP
<b>Button bar</b>	A little box on your screen that you click on with your mouse to accomplish a task. Most buttons contain small pictures (icons) that display what they do, such as a small printer that can be clicked on to print a document.	3-8	MM, T
<b>Cell</b>	The space at the intersection of a row and column in a spreadsheet.	3-8	SS
<b>Circle graph</b>	A picture showing the relationship of two or more sets of data using a circle.	3-8	SS
<b>Column</b>	The vertical divisions in a spreadsheet that are named with an alphabetical letter	3-8	SS
<b>Copy</b>	To make an exact copy of information in your document, so you can place in order to duplicate it in a new location.	3-8	ALL
<b>Credits</b>	To give reference to the creator and source of the information used in a presentation.	3-8	SI
<b>Edit</b>	To make changes in a document or presentation.	3-8	DTP

<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>Entry bar</b>	The field where information is entered in a spreadsheet.	3-8	SS
<b>Font</b>	The shape and style of text.	3-8	DTP
<b>Freeware</b>	Software written and then donated to the public, so anyone is free to copy it and share it with their friends. This is not the same as shareware or commercial software, which is supposed to be paid for.	3-8	SI
<b>Gif (<i>Graphic Interchange Format</i>)</b>	(Pronounced "jiff.") A file format for pictures, photographs, and drawings that are compressed so that they can be sent across telephone lines quickly. Format widely used on electronic bulletin boards and the Internet and are limited to 256 colors, so they cannot be used for high-end desktop publishing.	3-8	DTP
<b>Graphic</b>	Images/pictures created, edited, and/or published using a computer.	3-8	DTP
<b>Home page</b>	An introductory screen on a web page on the World Wide Web, used to welcome visitors. A home page can include special text or graphics on which you click to jump to related information on other pages on the Web.	3-8	T
<b>Hyperlink or Hypertext</b>	Special text when clicked jumps the user from one related topic to another.	3-8	MM, T
<b>Illustration</b>	Clip art, graphics or drawings on a computer.	3-8	DTP
<b>Indent</b>	To set the first line of a paragraph in from the margin in a word processing document.	3-8	DTP
<b>Jpeg (<i>Joint Photographic Experts Group</i>)</b>	A standard for shrinking graphics so they can be sent faster between modems and take up less space on your hard drive. These graphics can be reduced to 5 percent of their original size, but the image quality deteriorates. However, compressing graphics to 30 or 40 percent of their original size results in minimal loss of quality.	3-8	DTP
<b>Label</b>	The term given to the words entered on a spreadsheet usually naming a column.	3-8	SS
<b>Landscape</b>	The page setup that permits a document to be printed in a horizontal position.	3-8	ALL
<b>Line graph</b>	A graph used to display trends and compare data.	3-8	
<b>Line spacing</b>	The span between lines of text	3-8	DTP
<b>Linear</b>	Moving in a straight line or path; a multimedia presentation that moves in a straight line from image to image.	3-8	MM
<b>Links</b>	Connections that bridge one image, page, or word to another by clicking on a highlighted word or phrase.	3-8	MM, T
<b>Non-linear</b>	Not moving in a straight line or path; a multimedia presentation that transitions from one image to another in an order that is preset, but not necessarily in a straight path - Example: a non-linear presentation can transition from image 1 to image 3 and back to image 1. using menus/branching.	3-8	MM, T
<b>Online Resources</b>	Internet information available to a computer user.	3-8	T

<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>Paste</b>	To insert the last information that was cut or copied into a document. Cut and paste can be used to move information within or between documents.	3-8	ALL
<b>Pie graph</b>	Circle graph divided into pieces that look like portions of a pie.	3-8	SS
<b>Portrait</b>	The default page setup that prints the document vertically.	3-8	ALL
<b>Public Domain</b>	Software written and then donated to the public. Anyone can use and copy public domain software free of charge, but it is not always the same quality as commercial software.	3-8	SI
<b>Row</b>	The horizontal divisions in a spreadsheet named with a number.	3-8	SS
<b>Save</b>	To storing information on a floppy disk, hard drive or CD for later use. Work should be saved often, every 5 or 10 minutes, to make sure your latest changes are safely recorded.	3-8	ALL
<b>Save As</b>	To save a document with a new name.	3-8	ALL
<b>Server</b>	A special computer used to store programs and files, and then sends it out to other computers one or all at a time.	3-8	SI
<b>Shareware</b>	Software that can be tried before you purchase.	3-8	SI
<b>Spreadsheet</b>	An application that can be used to do calculations, analyze and present data. It includes tools for organizing, managing, sorting and retrieving data and testing "what if " statements. It has a chart feature that displays numerical data as a graph.	3-8	SS
<b>Table</b>	Columns and rows of cells that can be filled with text that are used to organize information	3-8	SS
<b>Thesaurus</b>	A feature in most word processors used to replace a word in a document with one that is more suitable and adds variety to your writing.	3-8	DTP
<b>URL Address - Uniform Resource Locator</b>	Website address. Example: <a href="http://www.carteretcountyschools.org">http://www.carteretcountyschools.org</a>	3-8	T
<b>Value</b>	The term for a number in a spreadsheet that can be added, subtracted, multiplied or divided.	3-8	SS
<b>Web address</b>	Universal Resource Locator (URL). Example: <a href="http://www.carteretcountyschools.org">http://www.carteretcountyschools.org</a>	3-8	T
<b>WWW (World Wide Web)</b>	The section of the Internet that allows access to text, graphics, sound, and even video. A lot of free information can be found on the WWW.	3-8	T
<b>WYSIWYG</b>	WYSIWYG is an acronym for "What You See Is What You Get" and is pronounced "wizzy wig." WYSIWYG simply means that the text and graphics shown on your screen exactly match your printouts.	3-8	T

<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>AND</b>	A way to search for information using the words AND, OR and NOT. Boolean logic was created by English mathematician George Boole 150 years ago.	4-8	DB
<b>Ascending Order</b>	Organizing or sorting information in order from smallest to largest, or A-Z or 1-9	4-8	SS
<b>Calculate</b>	The working of mathematical equations. Formulas that are usually used in spreadsheets allow the computer to automatically perform calculations.	4-8	SS
<b>Descending Order</b>	Organizing or sorting information in order from largest to smallest, Z-A or 9-1	4-8	SS
<b>Domain</b>	The part of an Internet address that identifies where a person's account is located. For example, in the address <a href="mailto:jdoe@dpi.state.nc.us">jdoe@dpi.state.nc.us</a> the domain is everything after the @.	4-8	T
<b>E-mail</b>	Sending and receiving messages through a computer network. This process requires a computer, modem or network connection, and an e-mail address. It is convenient because all messages are sent and received immediately over short or long distances.	4-8	T
<b>Field</b>	A place in a database record where a category of information can be entered or located.	4-8	DB
<b>File</b>	A set of related records in a database	4-8	DB
<b>Format</b>	To set the margins, tabs, font or line spacing in layout of a document.	4-8	DTP
<b>Keyword</b>	A word or reference point used to describe content on a web page that search engines use to properly index the page.	4-8	T
<b>Math Symbols to Use When Searching</b>	<b>Symbols used in a search.</b> <b>&gt;Greater than symbol</b> <b>&lt; Less than symbol used in a search</b> <b>≥ Greater than or equal to</b> <b>≤ Less than or equal to</b> <b>≠ Not equal</b> <b>= Equal</b>	4-8	DB
<b>OR</b>	Formal name given to advanced search strategies using AND, OR and NOT connectors. Boolean logic was created by English mathematician George Boole 150 years ago.	4-8	DB
<b>Page Set Up</b>	The term in reference to the way a document is formatted to print.	4-8	DTP
<b>Record</b>	A collection of related field and entries.	4-8	DB
<b>Search</b>	To look for specific information on the internet or computer.	4-8	DB, T
<b>Search Engines</b>	Software that searches, gathers and identifies information from a database based on keywords, indices, titles and text.	4-8	T

<b>Term</b>	<b>Definition</b>	<b>Grade Levels</b>	<b>Strands</b>
<b>Search Strategies</b>	There are 3 basic ways to begin a search. <ol style="list-style-type: none"> <li>1. Try to guess at the URL.</li> <li>2. Use Subject directories provided by some search engines. The selected resources are grouped by subject, categories, and subcategories that can be used for keyword search or to browse the categories.</li> <li>3. Use a search engine for large searches using unique keywords or combinations of keywords to narrow the search.</li> </ol>	4-8	T
<b>Security</b>	Protection of computer, computer files or a computer network from use without permission of the owner or owners.	4-8	SI
<b>User name</b>	First part of an e-mail address. Example: jmwinton is the user name of the following e-mail address. <a href="mailto:jmwinton@carteret.k12.nc.us">jmwinton@carteret.k12.nc.us</a>	4-8	T
<b>Animated clip art</b>	A moving clip art graphic.	5-8	DTP
<b>Anti-Virus</b>	An application designed to search for viruses and repair files on a computer.	5-8	SI
<b>Firewall</b>	Technology that prevents users from visiting inappropriate web sites, and protects the network from unauthorized users.	5-8	SI
<b>Hacker</b>	An unauthorized person who secretly gains access to computer files.	5-8	SI
<b>Network</b>	A system of connected computers that allows the sharing of files and equipment. There are two types of networks: local area network (LAN) and wide area network (WAN).	5-8	T
<b>Virus</b>	A computer program designed to damage computer files.	5-8	SI
<b>Worm</b>	A computer file designed to do damage that goes through a computer and possibly a network	5-8	SI
<b>Probeware</b>	Computer assisted data collection tools	6-8	SS

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