



North Carolina

Adult Basic Education

Technology/Computer

Content Standards

FINAL

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Introductory Materials

North Carolina Adult Basic Education Technology/Computer Content Standards

Overview

The North Carolina Adult Basic Education Content Standards for Technology/Computer skills represents a proactive effort by North Carolina adult educators to ensure rigor and consistency in program content and student outcomes for adult learners throughout the state. The Content Standard Initiative is a leadership activity funded by the North Carolina Community College System. This document was developed and revised by an outstanding cadre of the state's outstanding adult educators.

In developing these content standards, teams worked to write and edit world-class standards customized for adult learners. These standards reflect sensible criteria for usefulness, intelligibility, rigor, and measurability. The strength of the Technology/Computer Content Standards is that they provide 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. The North Carolina Adult Basic Education Technology/Computer Content Standards support instructors in developing learning opportunities that prepare adult learners for successful transition to higher education, vocational and career development, and effective involvement in their communities as individuals, parents, workers, and citizens.

The fundamental goal of statewide content standards is to ensure high levels of achievement for all adult learners in North Carolina. Content standards provide consistent content and performance standards for implementation in all programs funded and certified by the North Carolina Community College System. Content standards are valuable to the future of adult education throughout the nation. The value of statewide content standards includes:

Value to Adult Learners: Content standards provide a framework for adult learners to maximize their potential in their community, family, and workplace.

Value to Instructors: Content standards provide an easy to understand model to guide instruction.

Value to Programs: Content standards improve articulation among adult educators, enabling them to assess student performance and measure program effectiveness with greater accuracy.

Value to the State of North Carolina: Content standards establish a strong foundation for effective delivery of services to all adult learners. They provide consistency and continuity of educational services throughout the state.

Value to the Profession of Adult Education: Content standards raise the bar on instructional performance and accountability, which increases the credibility of adult education within the field of teaching and learning. In addition, the North Carolina Adult Basic Education Content Standards complement similar efforts on the national level by providing the framework for adult learners to maximize their potential in the community, family, and workplace and as lifelong learners.

What Are Content Standards?

Content standards are broad statements of the knowledge, skills, processes, and other understandings that guide curriculum in order for students to attain high levels of competency in challenging subject matter. Content standards define what a learner should know and be able to do within a specific content area. Content standards reflect the knowledge and skills of an academic discipline and reflect what stakeholders of educational systems recognize as essential to be taught and learned. Content standards provide a clear outline of content and skills so that programs can develop and align curriculum, instruction, and assessment. Many of the standards can be taught simultaneously; they are not written in sequential order.

Content standards do not dictate andragogy or teaching styles, nor prescribe class lessons or assignments. They are not driven by any particular reading series or text. The content standards and benchmarks are not written in sequential order. As students master skills to reach one benchmark, they may also reach other benchmarks within that standard or in other standards.

Technology/Computer Content Standards

Technology/Computer skills represent a new "basic", i.e., a new "adult basic skill". When acquisition and enhancement of technology/computer skills is integrated into the adult basic skills curriculum, these skills enable students to improve and enhance their learning of the other basic skills. The NC ABE Technology/Computer Content Standards identify 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. These content standards are designed to form the foundation for continuous learning and to be applicable to ever-changing innovations.

The Technology/Computer Content Standards describe the progressive development of knowledge and skills in six standards: Societal and Ethical Issues, Database Management, Spreadsheets, Keyboarding/Word Processing/Desktop Publishing, Multimedia/Presentation, and Telecommunications/Internet. The Benchmarks include essential skills with reinforcement through application and focus on personal safety and ethical use of resources and information.

These content standards are designed to guide the development of skills over time. Technology and computer skills proficiency is not an end in itself, but lays a foundation for development of the other tools for lifelong learning, i.e., reading, writing, and math. These skills become building blocks with which to meet the challenges of personal and professional life. The development of technical proficiency generally requires a carefully planned curriculum that integrates technology skill instruction into instruction in other content areas thus allowing technology skill enhancement to also be a cumulative process, i.e., building up to increasingly more complex skills over time.

Standard 1 states that the student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies. This standard deals with three main goals: (1) 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. (2) Students must know

fundamental computer operations in order to become independent, productive users of computer technology. Students must master certain computer operations, computer terms and functions, and software application skills, as well as be able to use software correctly. (3) Students must understand issues of personal safety along with 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.

The remaining five standards deal with software application. Standard 2: Database Management, Standard 3: Spreadsheets, Standard 4: Word Processing and Desktop Publishing, Standard 5: Multimedia Presentations, and Standard 6: Telecommunications and the Internet. These standards focus on the application of computer/technology skills in preparation for work, continued learning, and personal use. 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, videoconferencing, and telecommunications) with audiences near and far.

The standards do not focus on keyboarding and some students may need additional work in this area to become proficient.

The Development Process

The process of developing these standards was highly participatory and encompassed active involvement and input from many adult educators across the state. Dianne Barber and Mary Ferrell of the Adult Basic Skills Professional Development Project at Appalachian State University facilitated the development process.

Definitions for Standards-related Terms

Content Standards

Content standards define what a learner should know and be able to do within a specific content area. They reflect the knowledge and skills of an academic discipline and reflect what stakeholders of educational systems recognize as essential to be taught and learned. Content standards provide a clear outline of content and skills so that programs can develop and align curriculum, instruction, and assessment. Content standards do not dictate andragogy or teaching styles, nor prescribe classroom lessons or assignments. The standards and benchmarks are not written in sequential order.

Benchmarks

Benchmarks are brief, crisp, and to the point. They are the specific set of skills learners need to develop and achieve in order to meet the more broadly stated standard. Benchmarks provide more detailed information on the specific skills and contexts learners must master to meet the standard. They reference specific proficiency levels and serve as checkpoints to monitor each learner's progress toward meeting a standard. Benchmarks are not written in sequential order; as students master skills to reach benchmarks, they may also reach benchmarks in other standards and areas. Verification checklists are included to assist the instructor with assessing each student's progress through the standards.

Performance Indicators

Performance indicators specify how competent or adept a learner's demonstration must be to show attainment of the content standard. In other words, a performance standard defines "how good is good enough" to meet the content standard. Performance indicators specify particular concepts and skills that the learner must know and be able to do as defined by the content standards in greater detail with some additional explanation of the type, quality, range, and depth of the performance expectations.

Teaching Suggestions

The teaching suggestions are included as a resource for instruction. These examples are provided to offer instructors some useful ideas for teaching the benchmarks and meeting the performance indicators. The ideas provided are evidence-based ideas that have worked with students who are learning computer skills.

Numbering System

The numbering system used is organized in a way that allows instructors and others to refer to specific standards and benchmarks when they are connecting them to curriculum, instruction, and/or assessments. The upper case letter stands for the content area, the first number stands for the content standard, the second number refers to the level, and the third number stands for the benchmark. For example, in the content standard number T.2.3.1 "T" refers to the technology content area, "2" refers to the standard, "3" refers to the level, and "1" refers to the benchmark.

"T" refers to the content area (technology), "2" refers to the standard.

"T" refers to the content area (technology), "2" refers to the standard, "3" refers to the grade level, and "1" refers to the benchmark number within that standard and grade level.

T.2. Student will demonstrate an understanding of databases and ability to create databases.

Benchmark	Performance Indicator
T.2.3.1 Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.	Students should be able to create a database from scratch.
T.2.3.2 Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.	Students should be able to use instructor- given sort and search functions to organize, analyze, interpret, and evaluate findings in an instructor provided database.



**Technology/Computer
Content Standards, Benchmarks,
Performance Indicators, and
Teaching Suggestions**

Standard 1. The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.

Level	Benchmark	Performance Indicator	Teaching Suggestions
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.	Identify 3 ways that computers are used to communicate from 1 person to another or 1 group of people to another; 3 ways a person might use a computer to perform a job, and 3 ways computers are used for personal entertainment.	Display pictures (from magazines or newspapers) to get students to think about how computers are used in everyday life.
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.	The student should be able to point out and briefly explain the function of these terms: CPU, monitor, keyboard, mouse, disk drive, hardware, software, CD, DVD, hard drive, flash drive, printer.	Have students make a glossary of computer terms; this can be done using a database such as Microsoft Works (each student can add 1 or more records) or with a word processor (each student can contribute to a common document). Print the final product for each student to have as a reference of computer terms.
T.1.1.3	Identify and discuss common features and functions of computer software and devices.	The student should be able to perform the following tasks: open an existing file, create a new document, save, print, and explain the difference between input and output.	<p>Have students add these terms to the glossary mentioned in standard T.1.1.2.</p> <p>Have students word process a paragraph about themselves. Have them give their file a name, save, print, close the file, rename it, make a backup copy, open the file again.</p> <p>After performing these tasks, have students identify which processes involved input and which involved output.</p> <p>Note: This paragraph can be a good beginning of the year activity for students to get to know each other and the instructor if students share their paragraphs. The paragraphs can be displayed on a bulletin board; later when digital camera skills are covered, students can add a photo of themselves to their paragraphs.</p>

T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.	Students should be able to explain and model how to care for flash drives, including how to safely eject them from the computer; clean a monitor screen; turn a computer off correctly; and model keeping food and drinks away from computer work areas.	Make a list of actions a person can take to care for technology resources. Beside each action, list consequences that might occur if the resource is mistreated.
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and society in general.	Students should know the function of the following devices: computers, cell phones, digital cameras, bar code scanners, handheld devices, optical storage devices, and GPS systems.	Have students make a chart (either on a word processor, paper, or blackboard) with 2 sections: 1950 to 1980 and Present Day. List technology common in each time period, attempting to compare like technologies (i.e., a map versus a GPS). Next, add a third column labeled "Impact on Society" and list how present day technology has been influenced by each of the items.
T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.	Students should be able to identify how careers have changed over the past 100 years due to technology.	The instructor can show 3 segments from videos (i.e., tv shows) of 3 time periods (past, present, and future) and have students identify technology used and how that technology has evolved. For example: in a video from the past, the teacher could show a few minutes from the Andy Griffith Show when phones were attached to a wall and an operator dialed the phone number. If a futuristic video is not available, have students brainstorm what they think could make devices function better. Have students list careers that are now obsolete due to technological changes, i.e., telephone operators.
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.	The teacher can choose a career common to the local community and have students list either on a chart, the board, or paper technology skills needed for that job.	Have each student identify a career he/she would like to have and investigate (either through the Internet or personal interview) what technology skills are needed for that career. Allow students to work with a partner if there are common career goals in the class.

T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.	Students should understand what plagiarism is, why it is wrong, and how it affects an author.	Give students a scenario where they are a writer who has poems posted online; ask them how they would feel if someone copied their poems and claimed that he/she wrote them.
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.	Students should be able to <ul style="list-style-type: none"> • give examples and effects of Internet and cell phone bullying, • understand how to be safe regarding personal information and interactions online, • recognize if a website is valid and/or secure, • guard against computer crime such as money scams, • know and model email etiquette, including not spamming or sending inappropriate email, and • recognize Internet chain mail. 	Have students read articles about how bullying affects a person (e.g., depression, suicide, anger). Show students "mock" emails and have students decide if they follow Internet etiquette guidelines.
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.	Students should know the types of software licenses (public domain, shareware, and copyright).	Have students correctly cite online sources with a project they complete (i.e., a PowerPoint or web page); show examples of MLA and APA citations.
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, and language), especially as related to use during class and for class projects and assignments.	Students should know how to download online music legally and recognize illegal methods to download music. They should also know the possible consequences of downloading illegal music.	When creating projects, direct students to sites that are public domain (i.e., freeplaymusic.com).

T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs, network resources) and protection of computers, networks, and information (virus protection, network security, passwords, firewalls, privacy laws).	Students should know how to create a password that has good or high security. They should also understand the ethics involved with passwords and the necessity of changing passwords frequently.	Have students draw a diagram of a network, including a file server. Have them explain how software is distributed and how a site license works.
T.1.3.2	Investigate, recognize, and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.	Students should be able to: <ul style="list-style-type: none"> • know the warning signs that a computer is infected with a virus; • explain effects a virus might have on a computer; • explain reasons a person may create a virus; • understand how to prevent getting a virus; and • know how phishing, adware, key loggers, and spyware works. 	Have students discuss the different kinds of antivirus software available and what they would choose for their own computer.
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.	Students should be able to give examples of settings where a network would be desirable and where a non-networked setup would work better.	Have students brainstorm the benefits of networked computers versus non-networked computers and vice versa (i.e., your computer at work may be connected to email and the Internet whereas your computer at home may not be connected to anything).
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows on the desktop, and copy and paste data between two windows on the desktop).	Students should know the parts of a window (title bar, close box, minimize button, maximize button, resize area) and when to use them.	Provide students with 2 word processed documents (2 poems) then have them cut and paste and copy and paste from 1 document to another.
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.	Students should be able to troubleshoot as problems arise in class. They should know what to do if a computer locks up.	Present students with scenarios where there is a hypothetical problem and have students give suggestions of the origin of the problem (e.g., light off on printer may mean that it is not plugged in or the power button is off).

Standard 2. The student will demonstrate an understanding of databases and ability to create databases.

Level	Benchmark	Performance Indicator	Teaching Suggestions
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.	Give examples of print and non-print databases used in schools, business, science, etc.	Ask students to consider what might happen if a library had no catalog system. Ask students to consider a common database that they use (cookbook, phone book) and brainstorm reasons why it might be better in print form than why it might be better in electronic form.
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society (e.g., in education, government, business, community (grocery, pharmacy, and home)).	Contrast the advantages/disadvantages of both print and non-print databases.	As a whole class activity, have students list places in the community they commonly go then tell how databases are used or might be used at that place. Give an example to begin.
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.	Students should be able to identify at least six database terms and/or concepts by writing definitions or completing a matching type activity.	Using index cards, have students create a database about an interest of theirs, i.e., a movie collection, the cars they drive, music they collect, books read, etc. Each student will fill out 1 record (1 index card). This database can be done collectively as a class, thus building a large database students can use as a reference. Solicit ideas on what fields will be needed. Discuss definitions of fields, records, and files. Have students choose a field to manually sort the database by then choose a criterion and manually filter the database.
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).	Students should understand the difference between a search and a filter, and be able to show all records after performing a search or filter.	Give students a prepared electronic database (e.g., dinosaurs, waterfalls, U.S. presidents, etc.) and have them do a search then a filter.
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.	Students should know how to sort in both ascending and descending order and understand when to use ascending and descending orders.	After performing the search in standard T.2.2.1, have students then sort the data to alphabetize or put in numerical order (whichever is applicable) then do the same for the filter.

T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.	Students should be able to add records and fields.	Have students add a record to the database used in standard T.2.2.1 OR have students add a field to an existing record. Have students add another field to cite the source of their information.
T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, web pages).	Students should be able to do a sort, search, and filter and copy and paste the results into another document such as a word document.	After adding a record as started in standard T.2.2.1, sort the database. Insert the database into a word processed document.
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.	Students should be able to create a database from scratch.	Have students create an address book of their family and friends.
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.	Students should be able to use instructor-given sort and search functions to organize, analyze, interpret, and evaluate findings in an instructor provided database.	Have students use a prepared database to answer questions given by the instructor that use the sort and search functions to organize, analyze, interpret and evaluate their findings.
T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.	Students should be able to search for data and use filters to narrow records.	Have students answer <i>Who Am I?</i> questions by giving them 2 or 3 questions that require them to search and/or filter. For example, if they are creating a musician database, you could ask, "I am famous for rock and roll. I am deceased. I was born in South Carolina."
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.	Students should be able to plan and develop a simple database.	Students should be able to create an electronic database from the print database completed in standard T.2.2.4. Sort the database by various fields and draw conclusions from the sort.
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.	Students should be able to explain the strategies they used to plan and develop a database.	Have students create a simple database then share with the class how they created it, using terminology learned in class.
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.	Students should be able to explain how they did a search and why they got the results that they did.	After answering the <i>Who Am I?</i> questions described in T.2.4.1, have students show their search or filter to the class while explaining how they arrived at their answer(s).

T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.	Students should be able to save a database and copy and paste all or parts of it into a word processed or desktop publishing document. They should be able to insert a photograph from online and cite it.	Copy and paste the electronic database started in standard T.2.2.4 into a word processed document. Students can make a "wanted" poster with their <i>Who Am I</i> questions listed. Have students insert a photo from the Internet onto the poster and cite the source.
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Standard 3. The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.

Level	Benchmark	Performance Indicator	Teaching Suggestions
T.3.1.1	Identify spreadsheets as a tool for organizing information.	Students should be able to give advantages of using an electronic spreadsheet.	Have students brainstorm ways that using a spreadsheet is more efficient than using a calculator or paper and pencil.
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).	Students should be able to identify common uses of spreadsheets in today's world.	Give students examples of places where spreadsheets are used (e.g., bank or hospital) and have them discuss how a spreadsheet might be used at that location.
T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).	Students should be able to identify the parts of a spreadsheet (columns, rows, cells, formula bar, charts). Students should be able to recognize the difference among bar charts, line charts, and pie charts.	Have students open a prepared spreadsheet and identify the rows, columns, cells, and formula bar. Perform a sort to alphabetize or numerically arrange a column.
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.	Students should be able to enter data and predict and understand how the change will affect other data in the spreadsheet.	Using the spreadsheet in T.3.1.3, predict what would happen if a value in a numerical cell were increased or decreased then enter the value to check predictions. Identify which cells changed and why.
T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.	Students should be able to identify, enter, and display text and numbers into a spreadsheet.	Have students identify text and numbers in a prepared spreadsheet then enter their own text and numbers and discuss any changes.
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.	Students should understand why a chart is valid or not (e.g., it should have x and y axes labeled).	With the spreadsheet used in T.3.1.3, make an appropriate chart.

T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.	Students should know how to write formulas to add, subtract, multiply, divide, sum, and average values. They should know how to copy formulas down a column or across a row.	Using the spreadsheet in T.3.1.3, have students add a row or column and change formulas as needed then make a chart from the revised data.
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.	Students should be able to calculate median, range, and mode for a simple set of instructor- provided data.	Show students a spreadsheet (e.g., baseball batting averages) and have them calculate the median, range, and mode and explain the differences among the three values.
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.	Students should be able to create a simple spreadsheet, add formulas, and format cells for currency or numbers.	Give students (can be done in groups if the class is large) M&Ms candy and have them count the number of M&Ms they have for each color. Make a spreadsheet of their data. From the data, predict the percentages of each color. Are some colors more common than others? Use the F11 key on the keyboard to make a bar chart, either of all the data or a particular color.
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, and web pages), citing sources.	Students should be able to copy and paste part or all of a spreadsheet or chart into another document.	Using the chart made in standard T.3.4.1, copy and paste it into an imaginary letter to the president of the M&M company.

Standard 4. The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.			
Level	Benchmark	Performance Indicator	Teaching Suggestions
T.4.1.1	Identify basic word processing terms.	Students should know the meaning of file, cursor, menu bar, title bar, close box, minimize, maximize, and resize area.	Open a blank word document. Show students parts of the word processing window, menus, etc.
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert, enter/return, backspace, delete) on the keyboard.	Students should understand how backspace and delete keys differ, be able to capitalize words, enter numbers into a document, and identify the numeric keypad.	Have students enter their name, address, and telephone number on separate lines using a word processor.
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.	Students should be able to enter words into a word processor and use the enter key and arrow keys to go from one line to another. They should know how to enter numbers.	Adding to the document started in standard T.4.1.2, have students type a paragraph about themselves, perhaps telling where they are from, what hobbies they have, likes, and dislikes, etc.
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.	Students should be able to identify and use the menu/tool functions in word processing applications to create a simple document.	Have students type a sentence that includes their name and favorite hobby. From the formatting toolbar, have them change the font type, font color, font size, choose a word to boldface and italicize, underline a word, add clip art, do a spell check, save, print, and make a back-up copy.
T.4.1.5	Demonstrate correct finger placement for home row keys.	Students should be able to locate and demonstrate correct placement of fingers on the "home keys": asdf jkl;".	Have students type a few lines that contain only home row keys (won't be complete words). Example: asdfjkl; then type it backwards).
T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.	Students should be able to discuss with a group the advantages and disadvantages of using word processing.	Show students several examples of non-print word processed documents, i.e., newspaper article, magazine article, book. Have them discuss ways that these non-print documents can be created electronically.

T.4.2.2	Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.	Students should be able to open an existing document, make changes, undo changes, cut and paste, copy and paste, save changes, print, and make a backup copy.	Have students open a word-processed document that is easily recognized and you have put out of order (e.g., a children's poem or song such as <i>Row, Row, Row Your Boat</i>). Have students cut and paste lines into the correct order then have them copy and paste the entire poem or song so that they have 2 copies. Save, make a backup copy, and print.
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, and spell check).	Be able to identify and use the desktop, drop down menus, and tool bars. Know how to change margins and line spacing and perform a spell check.	From the song or poem in standard T.4.2.2, add a title, double space the body of the document, decrease the top, bottom, and side margins, and check the document for correct spelling.
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.	Be able to format and change the appearance of a document.	From the song or poem in standard T.4.2.2, enlarge the font of the title, boldface, center, and underline the title, change the font of the entire document, and choose a line to italicize.
T.4.2.5	Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.	Be able to type sentences into a document, use the "undo" button from the Edit menu, and print a document.	Add On Story Activity: Give students a "story starter" to type as the first sentence in a story that they write. Give them a few minutes to type on the story then have them stand up and go to another computer and add on to that story. Students rotate several times before going back to finish their story. Print and display stories if desired.
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.	Understand how varying columns and graphics change the look of a document.	Show students examples of magazine articles, advertisements, and newspaper articles and have them discuss how the layout and choice of graphics influences the viewer.
T.4.3.2	Recognize and use menu and tool bar features to edit and make corrections to documents.	Be able to do a print preview, change the orientation through Page Setup, insert a header, spell check, use the thesaurus, add a clip art picture, and/or resize the picture.	From the Add On Story started in standard T.4.2.5, add a clip art picture, change the orientation to landscape, insert a header with student's name, do a spell check, and change a word using the thesaurus for ideas.

T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.	Be able to copy and paste from 1 document to another.	From the database made in standard T.2.4.2, copy and paste part or the entire database into a word document.
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts (e.g., import, portrait, landscape, copy and paste between two documents, clipboard) to describe documents.		From the word document made in standard T.4.1.2, have students put the document in landscape orientation and explain the process of copying and pasting from the spreadsheet to the word document.
T.4.3.5	Select and use WP/DTP menu and tool bar features to revise and change existing documents.	Students should be able to enhance the layout of a document.	Give students a word processed file that is typed in a small, plain font. The document can be a poem they will recognize or lyrics to a popular song to edit. If possible, use a desktop publishing program such as Microsoft Publisher. Have students enhance the layout by changing the font, double spacing, adding a title, etc.
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions (e.g., minimize document, resize document, toggle between two open documents on the desktop, columns, tables, headers/footers, and using multiple files and/or applications) to develop (e.g., design, format, layout), edit/revise, and publish documents for a specific audience and purpose.	Have students create a document and explain some of the features and functions they used to create it.	Using a desktop publishing program such as Microsoft Publisher, have students create a brochure or newsletter based on a project they are doing. An example might be a newsletter written from the point of view of a character in a book.
T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.	Students should be able to list the advantages and disadvantages of using paper and pen versus a word processor or desktop publishing program.	Have students contrast the process of doing their newsletter or brochure in standard T.4.4.1 using paper and pen versus desktop publishing and desktop publishing versus word processing. Have them identify the target audience for their newsletter or brochure.
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word processing documents.	Students should be able to cite sources of copyrighted materials.	With the newsletter or brochure made in standard T.4.4.1, have students cite sources (information, images, etc.)

T.4.4.4	Use instructor- prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.	Students should be able to evaluate websites for design aspects such as ease of navigation, layout, graphics, etc.	Provide students with a rubric to evaluate various websites.
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.	Students should practice proper keyboarding techniques.	Have students keep a journal to practice keyboarding skills. You can have them turn it in or keep for personal reference. If students don't know how to begin, give them a question to start with such as, "If you could go on any trip for free, where would you go?" or "If you could trade places with anyone, who would you trade with?" or "What was the best day of your life?" Advanced students might even want to start an online personal blog.

Standard 5. The student will demonstrate an understanding of multimedia and the ability to create multimedia presentations.

Level	Benchmark	Performance Indicator	Teaching Suggestions
T.5.1.1	Identify and discuss components of multimedia.	Students should be able to identify text, audio, still images, animation, color, video, sound.	Show students an advertisement from a printed medium such as a magazine or newspaper. Point out the components in the ad such as text, color, photos, clip art. Show students a TV or Internet commercial advertising the same product and compare/contrast print media with multimedia.
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.	Students should be able to insert text, clip art, and photos into multimedia software.	Have students come up with an idea for an invention then create an advertisement. For example, they might create a boat that can also function as transportation on land. Have them identify their target audience and point of view. Have students use a program such as Paint to illustrate their products then insert their drawings into multimedia software such as PowerPoint, Hypermedia, or Photo Story.
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.	Students should realize that both print and non-print advertising are valuable and effective, depending on the product.	With the 2 forms of advertising (print and multimedia) viewed in standard T.5.1.1, have students identify the advantages and disadvantages to both forms of advertising.
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.	Students should know multimedia terms such as slide/card, link/button, text box, navigation buttons, transition, storyboard, sequential, nonlinear/branching, audio clips, video clips, images, links/hyperlinks.	As students create their advertisement in standard T.5.1.2, check for understanding of multimedia terms. Discuss if their product is more effective in a sequential or nonlinear format.
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.	Students should realize that each component used in multimedia should have a purpose and/or goal.	With their advertisement started in standard T.5.1.2, ask students to justify their choices of images, sounds, persuasive language, etc. What do they hope to accomplish with each component?
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.	Students should be able to insert, move, and resize text boxes and image frames (both clip art and photos).	Using a document created without graphics, have students add text boxes, clip art, and photos.

T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, and websites) to entertain, sell, and influence ideas and opinions.	Students should understand how media can be biased and they should know how to identify point of view and target audience. They should also understand how multimedia can be used to persuade an audience.	Show a 30 second commercial to students (can be from TV or the Internet). Have students list visuals used to portray a message. Show the commercial to students again but have them close their eyes. Have students list ways the creators used audio to portray a message. From whose point of view is the commercial told? Who is the target audience?
T.5.3.1	Identify, discuss, and cite various types of resources.	Students should understand what constitutes plagiarism. They should be able to cite resources such as still images, videos, articles, and music.	Have students make a section (e.g., a slide) in their multimedia advertisement citing any music, images, videos, or information they used.
T.5.3.2	Modify an existing multimedia story to include student narration.	Students should be able to insert a voiceover into a multimedia product.	Have students narrate their advertisement for the product they created. Have them first make a script then target ways they can use their voice and sound effects to "sell" their product.
T.5.3.3	Use storyboards, menus, and branching to modify or create non-linear products, citing sources.	Students should appreciate the planning necessary when creating a multimedia product.	Have students write a storyboard for a digital story that they will create with multimedia software. The storyboard can be done using index cards, a word processor, or pencil and paper. The "story" does not have to be a traditional story; it might be a belief, dream, or idea that they want to digitally share.
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.	Students should be able to compare and contrast methods that use multimedia and methods that don't use multimedia.	Using software such as Photo Story, iMovie, or Movie Maker, have students use the storyboard they created in standard T.5.3.3 to make a digital story. Have students brainstorm non-multimedia methods to create the story; discuss advantages and disadvantages of each method.
T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.	Students should be able to brainstorm several target audiences and discuss possible effects that modifying a product might have on an audience and then choose an audience and modify a document for that audience.	Have students share their digital stories with classmates, ideally using a projector. Choose a different audience (e.g., city council or elementary school children) and discuss how you might adapt your project.

T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.	Students should be able to collect information and create a chart to display findings. Students should be able to correctly cite resources used.	With their digital story, have students correctly cite their resources (information, images, sounds, videos, etc.). Students might also survey classmates about a topic interesting to the group (e.g., favorite genre of music), insert data into a spreadsheet, make a chart from the data, and then import the chart into a multimedia product.
T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).	Students should be able to discern if a multimedia product is of educational value and follows conventions of citing sources, targeting audiences, etc.	Give rubrics to students to review or grade digital photo stories presented by their classmates (standard T.5.4.2).

Standard 6. The student will demonstrate an ability to utilize Internet and other telecommunications resources.			
Level	Benchmark	Performance Indicator	Teaching Suggestions
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.	Students should understand the large variety of information available on the Internet.	Have students list ways to get information other than the Internet. Next, have them list everyday uses of the Internet (e.g., libraries, email, commerce, etc.)
T.6.1.2	Discuss the origin of the Internet.	Students should have a general appreciation for the genesis of the Internet, reasons it was created, and how it has developed.	Have students use the Internet to discover who started the Internet. Have them make a timeline of major advances and changes in the Internet (e.g., when the World Wide Web began).
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.	Students should realize that there are different types of web pages that give different types of information (e.g., commercial versus government websites).	Have students examine and discuss 2 or more different types of websites such as a shopping site and a library or government site.
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.	Students should realize that just because information is on a web page, it is not necessarily accurate and reliable.	Have students look at examples of web pages where information is reliable and other web pages where information is unreliable. Make a chart to pinpoint characteristics of reliable and unreliable web pages.
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, World Wide Web, digital information, URL, keyword, search engine, navigation, resources, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.	Students should be able to enter a web page address and go to the web page for that address, understand how links work, and search for information using a search engine. They should be able to make a bookmark or favorite of that web page.	Give students a list of the terms listed in this standard. Play the game, <i>What Am I?</i> , where students say 3 sentences <u>in first person</u> to describe their term without using the term itself, then ask their classmates, <i>What Am I?</i>
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.	Students should realize that copying and pasting or text, images, etc. from the Internet without citing the source is plagiarism.	Choose a variety of websites for students to examine and determine who the author is and discuss how they might cite resources from these pages.
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).	Students should appreciate the large variety of ways to use the Internet to collaborate with others.	Have students list ways of communicating with others, i.e., telephone, postal service, etc. and compare/contrast with online methods of communication, i.e., email, instant messaging, etc.

T.6.2.4	Use Internet resources to locate information, then discuss and compare findings for usefulness.	Students should be able to discern among online resources.	In groups, assign students a search engine (ex. Yahoo, AltaVista) and have them look up a topic the class decides on (e.g., baseball or movies). Compare results from various search engines.
T.6.2.5	Cite sources of information (print and non-print) for a project.	Students should be able to make a bibliography for both print and non-print sources.	Have students make a bibliography from information gathered in standard T.6.2.4.
T.6.3.1	Plan, discuss, and use search strategies with two or more criteria to find information online.	Students should be able to employ a Boolean search.	Have students use the advanced search to find more information for standard T.6.2.4 and then compare/contrast using simple versus advanced searches.
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.	Compare the advantages and disadvantages of various online collaborative tools.	Have students, in pairs or small groups, enter a page in a wiki such as Wetpaint to share information about a topic that they choose in standard T.6.4.1.
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.	Students should be able to adjust presentations according to their audience. They should be able to correctly cite online resources.	Have students present their wiki page from standard T.6.3.2. Have them cite their information at the bottom of the wiki page.
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communication.	Students should understand the advantages and disadvantages of various types of online communications.	If possible, have students Skype another group of students. Choose a topic to discuss and have them prepare questions to ask the other group. This activity could easily be integrated with other subjects. Compare and contrast email and web conferencing.
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks (e.g., password, firewalls, Spam, security, Fair Use, AUP/IUP's, IP address, Intranet, private networks, discussion forum, threaded discussion, LANS, WANs, netiquette, child predators, scammers, hackers).	Students should be able to list ways to use the Internet safely (e.g., don't give out personal information to unknown sources, etc.).	Divide topics into areas (e.g., personal safety or Internet etiquette) and have students choose a topic in pairs or groups (groups may already have been chosen from standard T.6.3.2). Have students create an infomercial using a product (e.g., newsletter, video, brochure, PowerPoint) to teach their classmates how to use the Internet safely.

T.6.4.2	Select and justify use of appropriate collaborative tools (e.g., surveys, email, discussion forums, web pages, wikis, online videoconferencing, documents, etc.) to survey, collect, share, present, and communicate information for the intended audience and purpose.	Students should be able to choose the most appropriate collaborative tool to present information to the intended audience.	Using the infomercial from T.6.4.1, have students set up a discussion forum to get feedback on their product.
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.	Students should understand that information should be sought from a variety of resources to produce an accurate and persuasive product.	When students create their infomercial in standard T.6.4.1, require them to have a variety of types of resources (primary sources, secondary sources, commercial sites, non-profit sites, government sites, encyclopedias, forums, discussion boards, etc.)
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.	Students should be able to evaluate if an Internet resource or product is correct and reliable. Students should realize that webmasters have target audiences.	With the infomercials created in standard T.6.4.1 or with the wiki pages created in standard T.6.3.2, have students use a prepared rubric to evaluate each other's work.



Technology/Computer Content Standards Verification Checklists

NC ABE Technology/Computer Literacy Content Standards Verification Checklist

Standard 1

Student	Instructor	Date Enrolled

Standard 1. The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.

Benchmark		Date	Initials
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.		
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.		
T.1.1.3	Identify and discuss common features and functions of computer software and devices.		
T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.		
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and in society in general.		
T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.		
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.		
T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.		
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.		
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.		
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language), especially as related to use during class and for class projects and assignments.		
T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs, network resources) and protection of computers, networks, and information (virus protection, network security, passwords, firewalls, privacy laws).		
T.1.3.2	Investigate, recognize and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.		
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.		
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows on the desktop, copy and paste data between two windows on the desktop).		
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.		

NC ABE Technology/Computer Literacy Content Standards Verification Checklist

Standard 2

Student	Instructor	Date Enrolled

Standard 2. The student will demonstrate an understanding of databases and ability to create databases.

Benchmark		Date	Initials
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.		
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society (e.g., in education, government, business, community (grocery, pharmacy), and home).		
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.		
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).		
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.		
T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.		
T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, and web pages).		
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.		
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.		
T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.		
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.		
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.		
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.		
T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.		

NC ABE Technology/Computer Literacy Content Standards Verification Checklist

Standard 3

Student	Instructor	Date Enrolled

Standard 3. The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.

Benchmark		Date	Initials
T.3.1.1	Identify spreadsheets as a tool for organizing information.		
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).		
T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).		
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.		
T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.		
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.		
T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.		
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.		
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.		
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, and web pages), citing sources.		

NC ABE Technology/Computer Literacy Content Standards Verification Checklist
Standard 4

Student	Instructor	Date Enrolled

Standard 4. The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.

Benchmark		Date	Initials
T.4.1.1	Identify basic word processing terms.		
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert, enter/return, backspace, delete) on the keyboard.		
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.		
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.		
T.4.1.5	Demonstrate correct finger placement for home row keys.		
T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.		
T.4.2.2	Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.		
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, spell check).		
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.		
T.4.2.5	Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.		
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.		
T.4.3.2	Recognize and use menu and tool bar features to edit and make corrections to documents.		
T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.		
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts to describe documents.		
T.4.3.5	Select and use WP/DTP menu and tool bar features to revise and change existing documents.		
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions to develop edit/revise, and publish documents for a specific audience and purpose.		
T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.		
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word processing documents.		
T.4.4.4	Use instructor prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.		
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.		

NC ABE Technology/Computer Literacy Content Standards Verification Checklist

Standard 5

Student	Instructor	Date Enrolled

Standard 5. The student will demonstrate an understanding of multimedia and ability to create multimedia presentations.

Benchmark		Date	Initials
T.5.1.1	Identify and discuss components of multimedia.		
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.		
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.		
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.		
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.		
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.		
T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, websites) to entertain, sell, and influence ideas and opinions.		
T.5.3.1	Identify, discuss, and cite various types of resources.		
T.5.3.2	Modify an existing multimedia story to include student narration.		
T.5.3.3	Use storyboard, menus, and branching to modify or create non-linear products, citing sources.		
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.		
T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.		
T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.		
T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).		

NC ABE Technology/Computer Literacy Content Standards Verification Checklist

Standard 6

Student	Instructor	Date Enrolled	
Standard 6. The student will demonstrate ability to utilize Internet and other telecommunications resources.			
Benchmark		Date	Initials
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.		
T.6.1.2	Discuss the origin of the Internet.		
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.		
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.		
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, World Wide Web, digital information, URL, keyword, search engine, navigation, resources, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.		
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.		
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).		
T.6.2.4	Use Internet resources to locate information then discuss and compare findings for usefulness.		
T.6.2.5	Cite sources of information (print and non-print) for a project.		
T.6.3.1	Plan, discuss, and use search strategies with two or more criteria to find information online.		
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.		
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.		
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communications.		
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks (e.g., password, firewalls, spam, security, Fair Use, AUP/IUP's, IP address, Intranet, private networks, discussion forum, threaded discussion, LANS, WANS, netiquette, child predators, scammers, hackers).		
T.6.4.2	Select and justify use of appropriate collaborative tools (e.g., surveys, email, discussion forums, web pages, wikis, online videoconferencing, documents, etc.) to survey, collect, share, present, and communicate information for the intended audience and purpose.		
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.		
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.		



Technology/Computer Content Standards Glossary

Glossary of Computer/Technology Terms

Active cell	The thick-bordered cell where you can enter numbers or formulas in a spreadsheet.
Adobe Acrobat	A free software product from Adobe designed to view .pdf (portable document format) documents downloaded from the World Wide Web.
Adobe Photoshop	Software used to edit digital images and save them in a highly compressed format for the World Wide Web, PowerPoint presentations, or word processing documents.
Alignment	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.
AND	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.
Animated clip art	A moving clip art graphic.
Anti-Virus	An application designed to search for viruses and repair files on a computer. Norton and McAfee make anti-virus software.
Application/ Software	Programs that allow you to accomplish certain tasks such as write letters, analyze numbers, sort files, manage finances, draw pictures, and play games.
Arrow keys	The keys on computer keyboard used to move the cursor up, down, left, or right on the screen.
Ascending order	Organizing or sorting information in order from smallest to largest, or A-Z or 1-9.
Asynchronous	Literally not at the same time. Online courses, email, discussion lists, online bulletin boards, or wikis are examples of asynchronous communication.
AUP (Acceptable Use Policy)	A set of rules and guidelines that are set up to regulate Internet use and to protect the user.
Axis	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.
Bar graph	One type of graph developed from spreadsheet data that uses parallel bars to compare data and changes in data over time.
Blog	Blog is short for web log. A web log is a journal that is frequently updated and intended for the general public. Blogs represent the personality of the individual author or sponsor.
Bold	A style of text that makes a letter or word darker and thicker to stand out in a document.
Bookmark	When you bookmark a page, you tell your web browser to remember that page's address (URL, uniform resource locator) so that you can go back to it easily without having to type in the URL again. Bookmarks are called "favorites" in MS Internet Explorer.

Browser	Software which lets you view material designed for the World Wide Web. A browser usually displays documents created in Hypertext Markup Language (HTML), the language used for creating web pages.
Button bar	A box or strip of buttons on the screen that you click on with your mouse to accomplish a task. It provides shortcuts for commonly used commands. 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. Some programs let you choose to hide or display the button bar and mix and match buttons to customize the bar. Also known as a toolbar.
Buttons	A hot spot used in multimedia applications to navigate from one place to another or to activate elements (e.g., sound, movies, animation).
Calculate	The working of mathematical equations. Formulas that are usually used in spreadsheets allow the computer to automatically perform calculations.
Cell	The space at the intersection of a row and column in a spreadsheet.
Chart	A way to present information from a spreadsheet in the form of graphs or tables.
Circle graph	A picture showing the relationship of two or more sets of data using a circle.
Clip art	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.
Column	The vertical divisions in a spreadsheet that are named with an alphabetical letter.
Compression	Reduction in the size of data in order to save space and time spent transferring the file.
Copy	To make an exact copy of information in your document so you can duplicate it in a new location.
CPU (Central Processing Unit)	The main chip that allows computers to do millions of calculations per second and makes it possible for users to write letters and balance a checkbook.
Credits	To give reference to the creator and source of the information used in a presentation.
Cursor	This is where the action is located on your screen, represented by a flashing line. When you type on the keyboard, the information appears at the cursor.
Database	Software application that manages 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.
Delete	A key used to erase characters or text.

Descending order	Organizing or sorting information in order from largest to smallest, Z-A or 9-1.
Desktop	The background for the windows, menus, and dialog boxes on a PC. It is supposed to represent a desk.
Desktop publishing (DTP)	Using features of word processing/DTP software to format and produce documents, letters, reports, flyers, and newsletters with graphics.
Dialog Box	Also known as pop-up windows, these are small windows that appear when you perform an action, select an option, or need information. For example, dialog boxes ask questions like "Do you want to save this document?" or "Are you sure that you want to exit this program?"
Digital Subscriber Line (DSL)	Technology that provides digital data transmission over the local telephone network using high frequency lines. Download speeds range from 256 to 24,000 kilobits per second.
Digital Versatile Disc (DVD)	An optical disc storage media format mainly used for video and data storage. DVDs are the same size as a CD but can store six times more data.
Digital Video Recorder (DVR)	A device that records video in a digital format to a disk drive or other memory within a device.
Distance Education/Learning	Distance education or learning is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods or communication by electronic and other technology as well as special organizational and administrative arrangements.
Domain	The part of an Internet address that identifies where a person's account is located. For example, in the address jdoe@newcc.edu the domain is everything after the @ symbol.
Dots Per Inch	Computers can only fit a certain amount of information on to a monitor screen. This is measured in how many dots can be shown in one inch of screen space. PC monitors range from 60-120 dots per inch but usually cannot display more than 72 dpi. Because of this limitation, images over 72 dpi should not be posted to a web page. Viewers will not be able to see any difference and the larger file size will slow the download time.
Download	Transferring files or information from a remote computer to your computer.
Drop Down Menu	A menu showing a list of choices on a web page. When you click on or roll the mouse over a down menu, other choices appear and you can select your choice.
Email	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.
Edit	To make changes in a document or presentation.

E-learning	A broad term that suggests any type of technology-mediated learning, from independent research to email conversations that contribute to personal or professional development.
Electronic Discussion	A way for topical discussions to continue outside of the classroom. Students can post messages to one another and the instructor electronically.
Email Attachments	Documents can be added to email messages. These attachments are not part of the message and must be read or viewed separately. Attachments do not have to be text documents; any computer file (images, programs, spreadsheets, etc.) can be attached to email. Most email programs allow you to attach information in this way.
Email Newsgroups	A method to facilitate discussion outside of class. Students subscribe to a group and send messages to other students in the group. The list is like an electronic bulletin board so students need to check it periodically to read the new messages.
Enter/Return	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.
Entry bar	The field where information is entered in a spreadsheet.
Excel	A program in the Microsoft Office Suite that creates spreadsheets.
Export	To convert a file into a format other than the original format, e.g., export database files into Excel spreadsheets.
Facebook	A free-access social networking website that is operated and owned by Facebook, Inc. Users can join networks, add friends, send messages, update their profile, post pictures, and videos and is an interactive way to connect with other people.
Fetch	This is Macintosh's method of moving files from one computer to another, similar to file transfer protocol (FTP). It is used to copy files from a personal computer to a server so they can be accessed by others.
Field	A place in a database record where a category of information can be entered or located.
File	1. Any document on a computer, e.g., movie, sound, or word files 2. A set of related records in a database
File Extension	These are the three letters which come after the dot in the name of a file and tell the computer what kind of file it is. Examples are .jpg (image file), .doc (Microsoft Word document), .txt (text file).
File Size	The size of the file is the amount of disk storage space taken up by a file (measured in bytes).
File Transfer Protocol (FTP)	A method of transferring files from one computer to another or downloading files from Internet sites.
Firewall	Technology that prevents users from visiting inappropriate websites and protects the network from unauthorized users.

Firewire	A collection of wires that support data transfer from one part of a computer to another at a very high speed. Firewire is intended for devices that contain large amounts of data such as camcorders, disk drives, and DVD players.
Font	The shape and style of text.
Format	To set the margins, tabs, font, or line spacing in the layout of a document.
Freeware	Software written and then donated to the public, so anyone is free to copy and share it with their friends. This is not the same as shareware or commercial software, which is supposed to be purchased.
Gif (Graphic Interchange Format)	(Pronounced "jiff.") A file format for pictures, photographs, and drawings that are compressed so that they can be sent across telephone lines quickly. This format is widely used on electronic bulletin boards and the Internet. It is limited to 256 colors so it cannot be used for high-end desktop publishing.
Gigabyte (GB)	A unit of measure of hard disks and flash drives, the more gigabytes the more storage space.
Google Search	The most popular search engine on the Internet and owned by Google, Inc.
Graph	A picture that shows the relationship of one or more sets of numbers to each other. Some graph types are line, bar, area, and pie graphs.
Graphic	Images/pictures created, edited, and/or published using a computer.
Hacker	An unauthorized person who secretly gains access to computer files.
Hardware	A physical part of the computer system such as the keyboard, monitor, mouse, joystick, printer, speakers, etc.
Hard drive	A data storage device consisting of a drive and one or more hard disks, such as a tape drive and its tape or a CD/DVD disk drive and its CD or DVD disk.
Highlight or Select	To choose part of a document by clicking and dragging over it with the mouse to highlight the text.
Home page	The first page of a web address. The home page serves as a gateway to the rest of the website by providing links to other pages.
Home row	Keys on the keyboard with fingers of the left hand are A-S-D-F and fingers on the right hand are J-K-L-;.
Host	The name given to a computer directly connected to the Internet. Host computers are associated with computer networks, online services, or bulletin board systems.
HTML	Hypertext Markup Language is the code used to write most documents on the World Wide Web. HTML codes tell your browser how to arrange text and images on the computer screen.

HTTP	Hyper Text Transfer Protocol is the standard method used to transfer data from a server to a remote computer. Web addresses often begin with http:// indicating that the documents are written in html. The Internet relies on http to perform tasks, without it you would not be able to view web pages or check email.
Hyperlink or Hypertext	Special text or images on a web page that when clicked cause your browser to load another page of html. Text links are usually underlined in blue and image links often take the form of buttons.
Icon	A small graphic symbol that represents a program, file, or folder on a computer. Clicking on an icon causes the program to run, a folder to open, or the file to be displayed.
Illustration	Clip art, graphics, or drawings on a computer.
Import	To convert a file into another format usually within a new file, e.g., import html files into pdf documents.
Indent	To set the first line of a paragraph in from the margin in a word processing document.
Input/output or I/O	The communication between an information processing system (a computer) and the outside world (a human or another computer). Inputs are the signals or data received by the system and outputs are the signals or data sent from it. Keyboards and the mouse are input devices of a computer whereas monitors and printers are output devices of a computer. Modems and network cards can serve as both input and output devices.
Interactive Whiteboard	A whiteboard connected to a computer where the board can be used as a touch screen, handwriting can be converted to text, and words and pictures can be dragged around with your finger. Pages can also be saved, reordered, and printed.
Internet	Term given to the network of computers that provide information worldwide.
Internet Explorer	A web browser created by Microsoft used to view pages on the web.
Java Script	A scripting language developed by Netscape. Java Script can make web pages interactive by telling users whether they've filled out a form correctly, displaying animated images, or allowing images to change when users touch them with the mouse.
Jpeg (Joint Photographic Experts Group)	JPEGs are the most commonly used digital image. It is a standard for shrinking graphics so they can be sent faster between modems and take up less space on the 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.
Keyboard	The hardware device used to enter letters into the computer.
Keyword	A word or reference point used to describe content on a web page that search engines use to properly index the page.
Label	The term given to the words entered on a spreadsheet usually naming a column.

Landscape	The page setup that permits a document to be printed in a horizontal position.
Line graph	A graph used to display trends and compare data.
Line spacing	The space between lines of text.
Linear	Moving in a straight line or path; a multimedia presentation that moves in a straight line from image to image.
Links	Connections that bridge one image, page, or word to another by clicking on a highlighted word or phrase.
Listserv	A generic term for an electronic mailing list or e-list.
Math Symbols to Use When Searching	Symbols used in a search. <>= ≠ Greater than, Less than, Greater than or equal to, Less than or equal to, Not equal or equal.
Monitor	The device with a screen used to show computer images.
Mouse	A tool used to move the cursor and pointer around the screen.
Multimedia	To use a combination of text, pictures, sounds, movies, and/ or animation in a presentation.
Network	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).
Non-linear	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.
NOT	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.
Numeric Keypad	The portion of a keyboard, set up like an adding machine or calculator, used to enter numbers and equations quickly into the computer.
Online resources	Internet information available to a computer user.
Online safety	Precautions taken to protect personal information and images from being misused by others.
Online training	Web-based course, simulations, and/or learning interactions that are intentionally structured for training/skill development.
OR	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.
Page Set Up	The term in reference to the way a document is formatted to print.
Password	A code for security purposes that allow access to a computer or the computer programs.
Paste	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.

Pictogram	Pictures used to create a bar graph chart.
Pie graph	Circle graph divided into pieces that look like portions of a pie.
Plug-in	Software that allows you to use a variety of media. Some work within the browser and some require you to play a file outside the browser depending upon how your system is configured and what operating system you are using. A popular plug-in is Flash Player.
Pop-ups	A form of online advertising on the Internet intended to attract web traffic or capture email addresses. It works when Websites open a new web browser window to display advertisements. Pop-ups are usually generated by JavaScript. Certain types of downloaded content like images and free music can cause pop-ups. Your computer may already have pop-up blockers installed and will let you know when content is being blocked and how to allow it to be downloaded.
Portable keyboard	A small keyboard that students can use for any writing activity. Files are saved automatically and may be downloaded to a computer for formatting and saving or sent directly to a printer.
Portrait	The default page setup that prints the document vertically.
PowerPoint	A Microsoft Office program that allows the user to create visually appealing presentations.
Print	To put what is on the computer screen onto paper. It creates a paper copy of the document created on the computer.
Printer	A hardware device used to make a paper copy of what is created on the computer.
Probeware	Computer-assisted data collection tools.
Public Domain	Software written 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.
QuickTime	A multimedia framework capable of handling various formats of digital video, media clips, sound, text, animation, music, and interactive images. It is available for Mac OS, Mac OS X, and Microsoft Windows operating systems.
Record	A collection of related fields and entries.
Retrieve	Open a saved document.
Row	The horizontal divisions in a spreadsheet named with a number.
RSS (Really Simple Syndication)	Web feed formats used to publish frequently updated works such as blog entries, news headlines, audio, and video in a standardized format. An RSS document, also called a "feed" or "channel", includes full or summarized text plus publishing dates and authorship. RSS formats are specified using XML.
Save	To store information on a disk, hard drive, flash 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.
Save As	To save a document with a new name.
Search	To look for specific information on the Internet or computer.

Search Engines	A tool on the web that searches, gathers, and identifies information from a database based on keywords, indices, titles, and text.
Search strategies	There are 3 basic ways to begin a search: 1. Try to guess the URL. 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. 3. Use a search engine for large searches using unique keywords or combinations of keywords to narrow the search.
Security	Protection of computer, computer files, or a computer network from use without permission of the owner or owners.
Server	A special computer used to store programs and files, and then sends the information out to other computers one or all at a time.
Shareware	Software that can be tried before being purchase.
Short Message Service	A communication service standardized in the mobile communication system allowing the exchange of short text messages between mobile phone devices. SMS text messaging is the most widely used data application.
Software/Application	Programs that allow you to accomplish certain tasks such as write letters, analyze numbers, sort files, manage finances, draw pictures, and play games.
Sort	Arranging information in a specific order (usually ascending and descending).
Spreadsheets	Applications that can be used to calculate, analyze, and present data. Excel, in the Microsoft Office Suite, includes tools for organizing, managing, sorting, and retrieving data and testing "what if" statements. It also has a chart feature that displays numerical data as a graph.
Stand Alone Computer	A computer that does not rely upon any other computer or server to work.
Storyboard	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.
Streaming	A method for transferring data continuously. Streaming allows you to display the data on your browser before the entire file is transmitted. For streaming to work, data must be received and sent to an application called a plug-in that processes the data and converts it to audio or video.
Synchronous	Learners are required to participate in a particular learning activity at the exact same time. For example, chat rooms, videoconferencing, and audio conferencing are designed to be synchronous.
Table	Columns and rows of cells that can be filled with text that are used to organize information.

Telecommunication	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.
Text	Words on a page, screen, or within a document.
Text Messaging or Texting	A common term for the sending of short text messages from mobile phones or personal data assistants using English language slang, e.g., instead of saying "great!", the user would text "gr8t" or "brb" for "be right back". Texting uses SMS.
Thesaurus	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.
Thumbnail	A tiny copy of a larger image used to give a general idea of what the image looks like before it is downloaded.
Twitter	Another free social networking website and micro-blogging service that enables users to send and read other users' updates known as tweets. Tweets are text-based posts of up to 140 bytes in length. Users may have to pay SMS fees through their phone service.
Upload	The process of transferring a file from a personal computer to a server. It makes the file available to others.
URL Address (Uniform Resource Locator)	An address for documents on the World Wide Web. For example, http://www.abspd.appstate.edu is a URL.
USB Flash Drive	A memory data storage device integrated with a universal serial bus (USB) interface. Most flash drives are removable, rewritable, and weigh less than an ounce. Flash drives are replacing floppy disks as the storage device of choice.
User name	First part of an email address. Example: barberdb is the user name of the following email address: barberdb@newcc.edu
Value	The term for a number in a spreadsheet that can be added, subtracted, multiplied, or divided.
Vandalism	The intentional act of destroying computer files or computer networks.
Virtual	Occurring or existing primarily online. Examples include virtual community, virtual world, and virtual reality.
Virus	A computer program designed to damage computer files.
Wallpaper	Refers to an image used as a background on a computer screen, may also be called desktop picture or desktop background.
Web address	Universal Resource Locator (URL). Example: http://www.abspd.appstate.edu
Webcast	Allows many people in different locations to see, hear, and participate in a meeting or event as it is happening. A webcast should be used when there will be more than eight receiving sites or a large audience.

Wiki	A page or collection of web pages designed to allow anyone to contribute or modify the content.
Windows	A software operating system produced by Microsoft and is the most widely used operating system used on computers.
Word processing	Using keyboarding skills to produce documents such as letters, reports, manuals, and newsletters.
Word wrap	This occurs when you get to the end of a line and continue typing allowing the text to go to the next line.
Worm	A computer file designed to do damage that goes through a computer and possibly a network.
WWW (World Wide Web)	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.
WYSIWYG	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 what is printed.



Technology/Computer Content Standards Appendices

Appendix A: Development Process

Phase 1: First Draft (August – December 2008)

Teams of adult educators met to write the first draft of content standards in Technology/Computer, and then continued to provide feedback and comments for continuous improvement of the original draft. These teams consulted a variety of resources including the NC Department of Public Instruction and West Virginia ABE Computer Literacy content standards. These content standards were developed in part from those existing standards.

The writing team for Phase 1 included ABS Directors, Instructors, and Coordinators for ABE, GED, AHS, ESL, CED, Family Literacy, and Distance Learning; Specialists in Assessment, Curriculum, Retention, and AHS; as well as Trainers and Certified Resource Specialists. Team members included:

Debra Armstrong- Martin	Dale Miller- Lenoir
Catina Blake- Martin	Shannon Newlin- Alamance
Mary Bonner- Martin	Ellen Overington- Wake Tech
Ian Brailsford- South Piedmont	Delores Payseur- Gaston
Shari Brown- Caldwell CC & TI	Gardy Perard- Durham Literacy Council
Geraldine Bryant- James Sprunt	Joe Phipps- Martin
Sujatha Chittilla- Wayne	Amanda Powers-Bennett- Pamlico
Synthia Cooper- Durham Tech	James Purnell- Wake Tech
Joey Crotts- Alamance	Dick Robbins- Cape Fear Literacy Council
Maurie Gabbert-Cole- Central Piedmont	Yaneta Sanchez-Brown- Durham Tech
Judy Gordon- Isothermal	Becky Sanders- Sandhills
Phil Gowins- Durham Tech	Donna Shea- Sandhills
Rebecca Graham- Sandhills	Judith Smith- Beaufort County
Mary Ann Head- Isothermal	Lynn Stevens- Central Piedmont
Elizabeth Hembree- Haywood	Wanda Sweeney- Sandhills
Curtis Hildt- Coastal Carolina	Stephanie Taylor- Vance Granville
Ruth Hils- Isothermal	Lynne Toepke- Coastal Carolina
Floyd Hinshaw- Alamance	Mary Tucker- Catawba Valley
Kim Hinton- Caldwell CC & TI	Laurie Weston- Beaufort County
Bill Johnson- Johnston	Mandy Williams- Caldwell CC & TI
Kristi Marlow- Catawba Valley	Shelly Williams- Wayne
Michelle Meisheid- Roanoke- Chowan	Lisa Woodall- Gaston
	Shirl Woods- Durham Tech

Phase 2: Content Standards Review (Summer-Fall 2009)

Phase 3: Field Testing/Piloting

Phase 4: State-wide Dissemination/Implementation

Appendix B: Technology/Computer Literacy Self-Assessment

Please rate yourself on each of the following Benchmarks. Check only one box in each row. This is for your use only.					
Standard 1. The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.					
Benchmark		Don't know	Know a little	Know well	Can teach
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.				
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.				
T.1.1.3	Identify and discuss common features and functions of computer software and devices.				
T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.				
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and in society in general.				
T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.				
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.				
T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.				
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.				
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.				
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language), especially as related to use during class and for class projects and assignments.				
T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs, network resources) and protection of computers, networks, and information (virus protection, network security, passwords, firewalls, privacy laws).				
T.1.3.2	Investigate, recognize and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.				
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.				
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows on the desktop, copy and paste data between two windows on the desktop).				
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.				

Standard 2. The student will demonstrate an understanding of databases and ability to create databases.					
Benchmark		Don't know	Know a little	Know well	Can teach
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.				
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society (e.g., in education, government, business, community (grocery, pharmacy) and home).				
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.				
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).				
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.				
T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.				
T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, web pages).				
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.				
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.				
T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.				
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.				
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.				
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.				
T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.				

Standard 3. The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.

Benchmark		Don't know	Know a little	Know well	Can teach
T.3.1.1	Identify spreadsheets as a tool for organizing information.				
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).				
T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).				
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.				
T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.				
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.				
T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.				
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.				
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.				
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, web pages), citing sources.				

Standard 4. The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.

Benchmark		Don't know	Know a little	Know well	Can teach
T.4.1.1	Identify basic word processing terms.				
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert enter/return, backspace, delete) on the keyboard.				
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.				
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.				
T.4.1.5	Demonstrate correct finger placement for home row keys.				
T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.				
T.4.2.2	Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.				
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, spell check).				
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.				
T.4.2.5	Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.				
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.				
T.4.3.2	Recognize and use menu and tool bar features to edit and make corrections to documents.				
T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.				
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts (e.g., import, portrait, landscape, copy and paste between two documents, clipboard) to describe documents.				
T.4.3.5	Select and use WP/DTP menu and tool bar features to revise and change existing documents.				
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions (e.g., minimize document, resize document, toggle between two open documents on the desktop, columns, tables, headers/footers, and using multiple files and/or applications) to develop (e.g., design, format, layout), edit/revise, and publish documents for a specific audience and purpose.				
T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.				
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word processing documents.				
T.4.4.4	Use instructor prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.				
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.				

Standard 5. The student will demonstrate an understanding of multimedia and ability to create multimedia presentations.

Benchmark		Don't know	Know a little	Know well	Can teach
T.5.1.1	Identify and discuss components of multimedia.				
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.				
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.				
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.				
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and, appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.				
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.				
T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, and websites) to entertain, sell, and influence ideas and opinions.				
T.5.3.1	Identify, discuss, and cite various types of resources.				
T.5.3.2	Modify an existing multimedia story to include student narration.				
T.5.3.3	Use storyboard, menus, and branching to modify or create non-linear products, citing sources.				
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.				
T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.				
T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.				
T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).				

Standard 6. The student will demonstrate ability to utilize Internet and other telecommunications resources.

Benchmark		Don't know	Know a little	Know well	Can teach
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.				
T.6.1.2	Discuss the origin of the Internet.				
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.				
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.				
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, World Wide Web, digital information, URL, keyword, search engine, navigation, resources, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.				
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.				
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).				
T.6.2.4	Use Internet resources to locate information then discuss and compare findings for usefulness.				
T.6.2.5	Cite sources of information (print and non-print) for a project.				
T.6.3.1	Plan, discuss, and use search strategies with two or more criteria to find information online.				
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.				
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.				
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communications.				
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks (e.g., password, firewalls, spam, security, Fair Use, AUP/IUP's, IP address, Intranet, private networks, discussion forum, threaded discussion, LANS, WANS, netiquette, child predators, scammers, hackers).				
T.6.4.2	Select and justify use of appropriate collaborative tools (e.g., surveys, email, discussion forums, web pages, wikis, online videoconferencing, documents, etc.) to survey, collect, share, present, and communicate information for the intended audience and purpose.				
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.				
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.				

Appendix C: Annotated Bibliography

Balliro, L., & Kamiya, A. (2007). Spotlight: Akira kamiya keeps the big picture in mind. *Fieldnotes* 17(1), 11. Retrieved August 25, 2008, from <http://sabes.org/resources/publications/fieldnotes/vol17/fn171.pdf>

This article discusses one man's perspective on when and how to use technology in the classroom. He suggests starting with a teaching goal or something the student wants to learn then discuss what types of technology can be used to reach that goal. He also shares some safety tips to avoid being scammed on the Internet.

Batson, T. (2002, November). *The electronic portfolio boom: What's it all about?* Retrieved August 27, 2008, from <http://campustechnology.com/printarticle.aspx?id=39299>

This is an article discussing the pros and cons of electronic portfolios and why all students should use them. It also offers tools and resources from Universities that are already using ePortfolios.

Carter, J., & Quann, S. (2003). *Under construction, building web sites as a project-based learning activity for abe/esol classes: Tips for teachers.* Retrieved July 30, 2008, from http://tech.worlded.org/wei_under.pdf

This document describes how to build Web sites in ABE/ESOL classrooms by both teacher and student involvement. There is a chapter on getting started, planning the site, sample sites, building the site, reflection and assessment of the process and site, and final tips.

Carter, J., & Titzel, J. (2003, July). *Technology in today's abe classroom: A look at the technology practices and preferences of adult basic education teachers.* Retrieved July 30, 2008, from <http://tech.worlded.org/weitechreport.pdf>

This document discusses the findings of a regional survey given to ABE programs across the northeastern U.S. The purpose was to find out how technology was being used in the classroom, what teachers want to use technology for, and what kinds of support or professional development are out there to help teachers achieve their goals.

Cohn, E. R., & Hibbitts, B. J. (2004, November). *Beyond the electronic portfolio: A lifetime personal web space.* Retrieved August 28, 2008, from <http://net.educause.edu/ir/library/pdf/EQM0441.pdf>

This article discusses the differences between electronic portfolios and lifetime personal Web spaces. It also offers legitimate reasons to choose a LPWS instead of the ePortfolio.

Cromley, J.G. (2000, December). Learning with computers: The theory behind the practice. *Focus on Basics*, 4(C). Retrieved July 19, 2008, from <http://www.ncsall.net/?id=303>

This is an article discussing the theory behind the use of learning with computers especially geared toward Adult Basic Education (ABE) teachers. It discusses the limitations, effective uses, increased interest, interactivity, collaboration, accommodations, memorization, thinking tools, and implications of technology in the classroom.

Good, R. (2008, July). *Online collaboration tools- New technologies and web services.*

This is a great resource for finding and using online collaboration tools such as Project Forum, Intodit, and GroupBoard. Retrieved March 30, 2009, from http://www.masternewmedia.org/online_collaboration_tools_-_new_technologies_and_2008_07_07/

Hayes, E. *Reconceptualizing adult basic education and the digital divide*. Chapter to be published in Belzer, A., & Beder, H. *Toward defining and improving quality in adult basic education: Issues and challenges*. New York, NY: Lawrence Erlbaum.

This is a chapter from a book arguing for incorporating new technologies into basic skills programs and improving the quality of digital literacy education across the board.

International Society for Technology in Education (ISTE). (2007). Retrieved August 25, 2008, from http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS_for_Students_2007.htm

International Society for Technology in Education is a nonprofit organization advancing the effective use of technology in schools and teacher education. It serves as the home of the National Educational Technology Standards (NETS). These standards measure proficiency and goals for the knowledge, skills and attitudes needed to succeed in the Digital Age.

Kotrlik, J. W., & Redmann, D. H. (2005). Extent of technology integration in instruction by adult basic education teachers. *Adult Education Quarterly*, 55(3), 200-219. Retrieved September 3, 2008, from <http://aeq.sagepub.com/cgi/reprint/55/3/200>

This document discusses the integration of technology into the ABE classroom, the barriers and anxiety many ABE instructors encounter, and how to incorporate technology into their lesson plans despite their limited resources.

Manohar, U. (2008, May). *Why is internet safety important?* Retrieved March 26, 2009, from <http://www.buzzle.com/articles/why-is-internet-safety-important.html>

This article discusses the importance of Internet safety and the common dangers and risks associated with the Internet.

Manohar, U. (2008, February). *Internet safety*. Retrieved March 26, 2009, from <http://www.buzzle.com/articles/internet-safety.html>

Another article discusses the dangerous people waiting to prey upon unsuspecting victims on the Internet. It also discusses ways to achieve Internet safety.

Maran, R. (2003, September). *3D dictionary*. MaranGraphics, Inc. Retrieved February 3, 2009, from <http://www.maran.com/dictionary/index.html>

NCOnline. (2009). Retrieved February 2, 2009, from <http://ncbsonline.net/main.htm>

The North Carolina Online Website was created by the North Carolina Community College System Office. It is designed to provide Basic Skills educators with quick and easy access to a variety of state and national resources including the virtual library, online professional development directory, information exchange and NC Credentialing Project for instructors.

Northwest Lincs Resource Site. Retrieved February 26, 2009, from <http://www.nwlincs.org/CompTech/Glossary.htm>

Oak, M. (2008, July). *Ethical issues of internet privacy*. (2009). Retrieved March 25, 2009, from <http://www.buzzle.com/articles/ethical-issues-of-internet-privacy.html>

This article focuses on Internet privacy and the ethical issues it raises. It discusses whether third parties should be allowed to track visitors and how information is stored.

Oak, M. (2008, October). *Rules for internet safety*. Retrieved March 25, 2009, from <http://www.buzzle.com/articles/rules-for-internet-safety.html>

This article discusses Internet safety and how to implement safety measures while using the Internet.

Oregon Technology ABS Advisory Group. (2005). *Oregon adult basic skills technology plan 2005-2008*. Retrieved August 20, 2008, from <http://www.oregon.gov/CCWD/pdf/ORABSTechPlan.pdf>

This document describes the technology plan for the state of Oregon through 2008. With the support of the governor, the Oregon Technology ABS Advisory Group (OTAAG) and Oregon Council of Adult Basic Skills Development (OCABSD) have put together a comprehensive plan to integrate technology and increase educational opportunities in all adult basic skills programs.

Stewart, D. (2003, December). *Kaleidoscope*. NC Wise OWL, North Carolina Department of Public Instruction. Retrieved February 26, 2009, from <http://www.ncpublicschools.org/curriculum/computerskills/scos/20glossary>

Taylor, J. (2006, September). *Techglossary*. The Adult Literacy Education Wiki. Retrieved February 20, 2009, from <http://wiki.literacytent.org/index.php/TechGlossary>

Using technology in basic skills: A bibliography of resources available from north carolina community college literacy resource center. (2002). Retrieved September 3, 2008, from http://www.ncccs.cc.nc.us/basic_skills/docs/pdf_documents/TechnologyBibliography.PDF

This is a list of resources from the NCCC Literacy Resource Center. It is divided into resources for teachers and learners as well as some theory and policy resources.

Warlick, D. (2009, March). *The art & technique of personal learning networks*. Retrieved March 30, 2009, from <http://davidwarlick.com/wiki/pmwiki.php/Main/TheArtAmpTechniqueOfCultivatingYourPersonalLearningNetwork>

This is an on-going blog from David Warlick's CoLearners Wiki. It discusses personal learning networks and how to develop one. There are web links, tools, and other blogs that users might find useful.