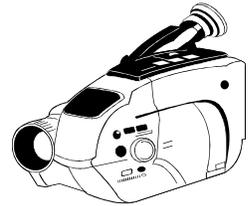
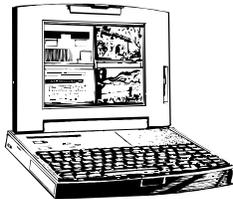


ABC Unified School District

K-12 Instructional Technology Standards and Benchmarks



Technology Literacy
Keyboarding
Word Processing
Database
Spreadsheet
Telecommunications
Multimedia

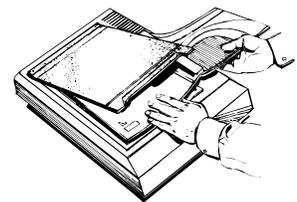
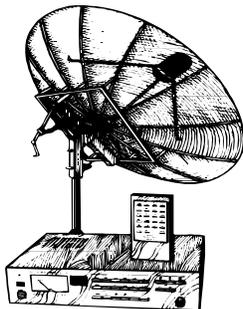


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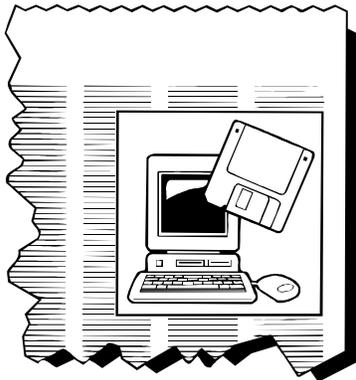
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Section 1

Introduction

- Benchmarks Committee
- Realizing the Vision
- ABCUSD Vision Statement
- Standards and Benchmarks Format
- Ethical Uses of Technology
- An Evolving Document



Coming together is a beginning; keeping together is a process;
working together is success. *Henry Ford*



K -12 Instructional Technology Standards

Technology
Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

TECHNOLOGY SKILL LEVELS

Level One (I): Introduction of skills/concepts through teacher modeling, demonstration, class discussion, or teacher-directed use.

Level Two (II): Development of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.

Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels.

K-12 Instructional Technology Standards and Benchmarks

Instructional Technology Standards and Benchmarks Committee

Acknowledgements: We wish to thank the following members of the K-12 Instructional Technology Standards and Benchmarks Committee for their outstanding work in the development of this document. This project would not have been possible without their knowledge and effort.

Ramona Eaton, Artesia High School

Scott Gates, Burbank Elementary School

Carla Gilmore, Cerritos High School

Pam Graham, Tetzlaff Middle School

Betty Hyatt, Palms Elementary School

Tim Paulson, Cerritos High School

Nancy Sagawa, Leal Elementary School

Judy Sanders, Carmenita Middle School

Linda Scott, Aloha Elementary School

The committee's work began in the Spring of 1998 and continued into the summer. They will meet again in the Spring of 1999 to revisit and revise this document as necessary.

A special thanks to Lyllas Cecconi for her contributions to the design of the final document and for her assistance during the entire project.

Lon Brunk, Director-Instructional Technology



K -12 Instructional Technology Standards

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K-12 Instructional Technology Standards and Benchmarks

Realizing the Vision

While the debate about technology's potential to have a positive impact on student achievement has abated, classroom teachers continue to face many profound challenges as they seek to integrate technology into the classroom. These challenges can become imposing obstacles to the success of a school's technology implementation program. Among the challenges are the need for appropriate and ongoing staff development, acquisition of technology hardware and software, access to timely technical support and the development of new teaching and learning strategies.

One critical challenge is the overwhelming need to train students to use the essential technology tools that are being employed in the classroom. Teachers often struggle with identifying the training needs of students and designing a curriculum that addresses those needs. More importantly, they face the challenge of finding enough time in the school day to teach technology skills and still use technology in the instructional program.

The ABCUSD K-12 Instructional Technology Standards and Benchmarks were developed to address this central issue of student training. The Standards and Benchmarks committee is convinced that teachers will be able to integrate and apply technology resources more effectively if students have been trained to use them. These Benchmarks outline and sequence the essential technology skills that all students need to understand and apply in the learning environment. While each school will develop their own plans for providing an instructional program to teach these skills, educators are encouraged to use this document to ensure that *all* students become proficient in developing and applying technology skills.

The K-12 Instructional Technology Standards and Benchmarks were designed to reflect the District's vision for the use of instructional technology. This vision encompasses the District's goals of using technology to improve student achievement, encouraging collaborative activities, providing access to enriching materials and fostering learning that prepares our students for the challenges of the classroom and the workplace.



K-12 Instructional Technology Standards and Benchmarks

K -12 Instructional Technology Standards

Technology Literacy

Keyboarding

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Telecommunications

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TECHNOLOGY SKILL LEVELS

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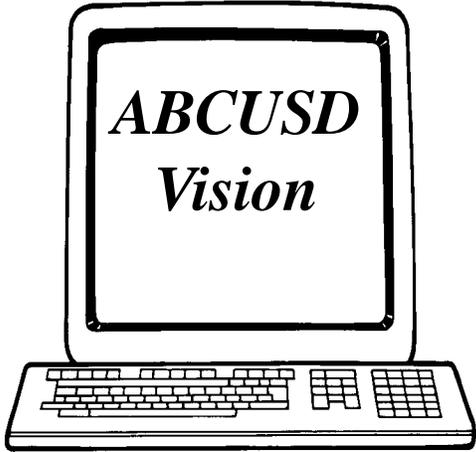
Level Two (II): Development of skills/ concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.

Level Three (III): Refinement, Extension and Application of skills/ concepts developed at previous levels.

ABCUSD Vision Statement

ABC Unified School District is committed to facilitating life-long learning for ALL students and preparing them for a technologically changing world by creating equitable and stimulating educational environments and developing and supporting professional staff.

Technology is essential for students to achieve world-class standards through the transformation of teaching and learning. By using technology, students become “knowledge architects” with the ability to access and manipulate information, synthesize concepts and creatively express ideas to others. Technology can bring the world to the student, addressing a variety of learning modalities and the diverse needs of the students we serve.





K -12 Instructional Technology Standards

Technology Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

TECHNOLOGY SKILL LEVELS

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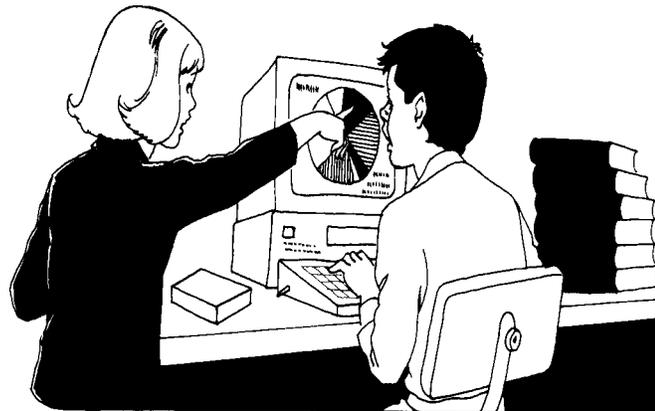
Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels.

K-12 Instructional Technology Standards and Benchmarks

Standards and Benchmarks Format

This document divides the essential instructional technology skills and concepts into seven Standards and their related Benchmarks. The seven Standards are; Technology Literacy, Keyboarding, Word Processing, Database, Spreadsheet, Telecommunications and Multimedia. Each Standard has sequential benchmarks that build upon each other.

For easier access and reference, three formats of the Standards and Benchmarks have been included in this document. The first format lists the Standards and their related Benchmarks, the second format presents the Standards and Benchmarks in a matrix form with grade-level designations and the third format is a compilation of the Standards and Benchmarks for grade level clusters. The grade-level clusters include K-2, 3-4, 5-6, 7-8, and 9-12. The Committee hopes that the variety of formats will assist schools in developing programs to teach technology skills in the classroom or computer lab settings.





K-12 Instructional Technology Standards and Benchmarks

K -12 Instructional Technology Standards

Technology Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

TECHNOLOGY SKILL LEVELS

Level One (I): Introduction of skills/concepts through teacher modeling, demonstration, class discussion, or teacher-directed use.

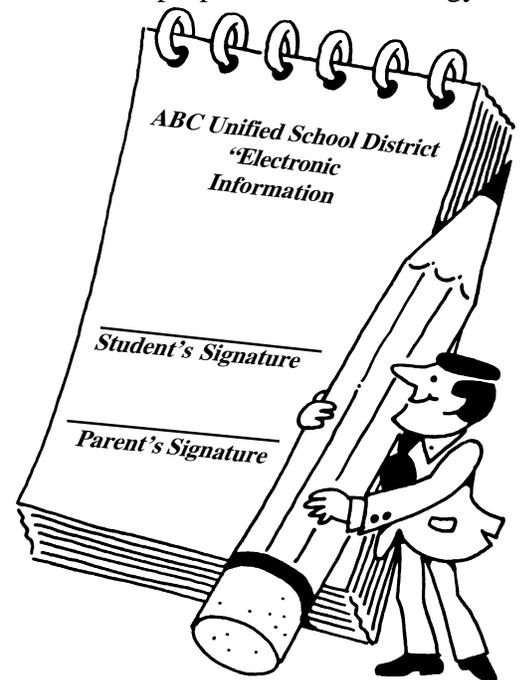
Level Two (II): Development of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.

Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels.

Ethical Uses of Technology

Technology has the potential to be a powerful tool for learning, but it also opens up many opportunities for unethical or inappropriate behavior by users. While the ABC Unified School District strongly believes in the educational value of technology in all learning environments, concerns about improper student interaction with technology resources has been an increasingly important issue. Technology, when used appropriately, can open up avenues of access to information and create communities of collaboration among users locally and globally. Unfortunately, it also makes it much easier to violate copyright laws, use the intellectual property of others without permission, lift code from programs and web pages, transmit and receive inappropriate messages and invade the privacy of other users.

As members of the ABCUSD community, students must have the opportunity to discuss and understand the proper role of technology. In addition, students must learn to accept personal responsibility for the proper use of all technology resources and services. Ethical issues related to technology use are included in the Standards and Benchmarks where appropriate and should be emphasized in every school's technology training program. All students should be aware of not only what they can expect while using technology, but also what is expected of them. For reference, the District's



"Electronic Information Services Contract" outlines the student's responsibilities and presents some of the inappropriate behaviors that may occur.



K-12 Instructional Technology Standards and Benchmarks

K -12 Instructional Technology Standards

Technology Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

TECHNOLOGY SKILL LEVELS

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An Evolving Document

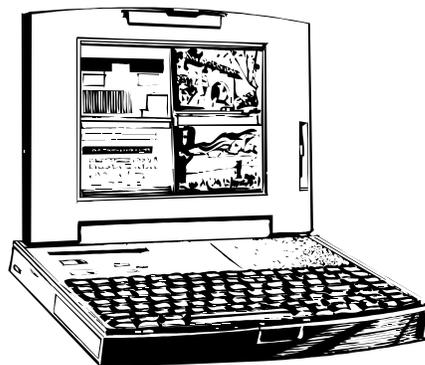
Like the world of technology itself, this document must be an evolving one that considers emerging technologies as well as new and creative strategies for using them in the curriculum. The Instructional Technology Standards and Benchmarks committee will continue to monitor the role of technology in instruction and revise this document as necessary.

The Committee strongly encourages input regarding this document from all District stakeholders. Please refer your comments or suggestions about the Instructional Technology Standards and Benchmarks to the office of the Director-Instructional Technology at Ext. 2131.



Section 2

K-12 Instructional Technology Standards and Benchmarks



Great people are those who make others feel that
they, too, can become great. *Mark Twain*



K -12 Instructional Technology Standards

Technology Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

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Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of

TECHNOLOGY LITERACY BENCHMARKS

Technology literacy enables students to fully participate in all learning environments and use their skills to become productive workers and citizens in a technology rich world.

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Identify basic components and peripherals of computers and other technology devices, such as:
 - keyboard
 - mouse
 - floppy drive, hard drive, CD ROM drive
 - monitor
 - CD ROM and floppy disks
 - printer
 - CPU
2. Develop a basic vocabulary of technology terms
3. Use technology appropriately and responsibly, including:
 - safety concerns
 - proper use of equipment
 - classroom and lab procedures
4. Operate technology equipment using input and output devices, such as:
 - mouse
 - pointing devices
 - printers
 - projection devices
 - keyboard
 - remote controls
 - monitors
 - adaptive devices
5. Demonstrate an understanding of basic computer operations and concepts, such as:
 - start/shut down
 - insert/eject disk
 - boot/reboot
 - sleep
6. Use proper procedures to effectively navigate computer desktops
 - launch and exit programs using proper sequence
 - use toolbars/menus/icons
 - open, close, move and resize windows
7. Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract, which include:
 - ethical use of technology
 - plagiarism
 - privacy
 - copyright laws
 - vandalism
 - personal responsibility



K -12 Instructional Technology Standards

Technology Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

TECHNOLOGY SKILL LEVELS

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Level Three (III): Refinement, Extension and Application of skills/ concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of

TECHNOLOGY LITERACY BENCHMARKS (cont'd)

Technology literacy enables students to fully participate in all learning environments and use their skills to become productive workers and citizens in a technology rich world.

8. Use proper file and folder management to organize, access and use digital information, such as:
 - view
 - create
 - rename
 - move
 - copy
 - delete
 - save
 - retrieve
 - print
9. Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems
10. Access information and communicate with others using local and global networks where available in the learning environment
 - distinguish between stand-alone and networked computers
 - access network and remote equipment using a variety of resources and skills
11. Demonstrate an understanding of the history and development of computer technology as it relates to:
 - society
 - career development
 - job displacement
 - retraining
12. Explore the use of specialized technology applications where available and appropriate, such as:
 - programming
 - video conferencing
 - probeware and data collection devices
13. Use technology resources to conduct career research
14. Explore and use technology resources to develop skills in various career paths, such as:
 - CAD
 - music
 - video
 - robotics
 - web page design
 - automotive technologies
 - graphic design
 - interior/fashion design
 - business applications
 - medical/health engineering
 - engineering/aerospace



K -12 Instructional Technology Standards

Technology
Literacy

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Multimedia

TECHNOLOGY SKILL LEVELS

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KEYBOARDING BENCHMARKS

Keyboarding skills can be applied to most technology-related learning tools to maximize student productivity and efficiency.

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents
 - correct body position at the computer
 - hand position on the homerows keys
 - alphabetic and numeric keys
 - special function keys (caps lock, command control, option, tab)
 - spacebar
 - return/enter
 - shift
 - arrows
 - delete/backspace
 - punctuation keys
 - type words, phrases and sentences
 - speed and accuracy

** While this standard only contains a single benchmark, the bulleted list may be divided into grade level designations. Each bulleted item should be introduced, developed and applied until proficiency is attained.*



K-12 Instructional Technology Standards

Technology
Literacy

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Multimedia

TECHNOLOGY SKILL LEVELS

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WORD PROCESSING BENCHMARKS

Word processing skills and tools provide students the opportunity to communicate ideas and information in an effective and efficient way.

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Communicate about word processing using developmentally appropriate terminology, such as:
 - word processing
 - cursor
 - I-beam
 - open
 - save
 - print
 - close
 - text
 - document
2. Demonstrate an understanding of word processing by using basic skills, such as:
 - open a document, enter text, save/save as and print
 - insert/import a graphic into a document
 - save to, and retrieve from, a designated folder or disk/storage device
 - format and edit a document
 - use keyboard shortcuts
 - save a document in multiple file formats
3. Create documents and presentations with word processing or desktop publishing software.



K -12 Instructional Technology Standards

Technology
Literacy

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TECHNOLOGY SKILL LEVELS

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DATABASE BENCHMARKS

Databases enable students to store, access, sort and interpret information.

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Communicate about databases using developmentally appropriate terminology
 - database file
 - record
 - field
 - sort
 - select/find/match
 - report forms
2. Use a prepared database to enter, manipulate and retrieve information
3. Create a database to compile, organize, graph and report information
 - multiple fields and records
 - variety of database layouts
 - import/export database records



K -12 Instructional Technology Standards

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Literacy

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Multimedia

TECHNOLOGY SKILL LEVELS

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SPREADSHEET BENCHMARKS

Spreadsheets enable students to manipulate, graph, interpret and present data.

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Communicate about spreadsheets using developmentally appropriate terminology
 - cell
 - row
 - column
 - formulas
 - functions
2. Use a prepared spreadsheet to:
 - enter/edit data
 - create simple graphs
3. Design, create and print a spreadsheet
 - formulas
 - functions
 - format text, headers/footers, alignment, color, fonts and borders
4. Generate graphs, tables or charts
5. Import/export spreadsheets to other programs



TELECOMMUNICATIONS BENCHMARKS

K -12 Instructional

Technology
Literacy

Keyboarding

Word Processing

Database

Spreadsheet

Telecommunications

Multimedia

TECHNOLOGY SKILL LEVELS

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Level Three (III): Refinement, Extension and Application of skills/ concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Demonstrate an understanding of the basics of telecommunications, such as:
 - terminology
 - computer networks (LAN and WAN)
 - internet/WWW
 - email functions
 - hardware and software
 - potential as a learning tool
 - participation in a global community
2. Communicate electronically using email systems
3. Access, retrieve and transmit information through telecommunications using online and networking resources, such as:
 - internet
 - basic terminology
 - browsers
 - search engines using Boolean operations
 - bookmarks
 - video conferencing
 - listservs, newsgroups
4. Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract
5. Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information
6. Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet
 - upload/download files and documents
 - web page creation



K-12 Instructional Technology Standards

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TECHNOLOGY SKILL LEVELS

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MULTIMEDIA BENCHMARKS

Multimedia resources can be used by all students to enrich the learning experience and to provide engaged learning opportunities for students with diverse learning modalities.

ALL ABCUSD STUDENTS SHOULD HAVE OPPORTUNITIES TO:

1. Communicate about multimedia tools and resources using developmentally appropriate terminology, such as:
 - multimedia
 - audio
 - storyboard
 - graphics
 - animation
 - video
 - scanning
2. Demonstrate proper use and care of multimedia equipment, such as:
 - VCR
 - video camera
 - videodisc player
 - video cassette
 - digital camera
 - still camera
 - scanner
 - audio devices
 - projection devices
3. Access information by using interactive CD ROM programs and other multimedia resources
4. Use the components of a multimedia authoring software program to plan and design multimedia presentations, such as:
 - backgrounds
 - transitions
 - storyboards
 - cards/slides
 - buttons
 - importing
5. Create and edit resources for use in multimedia projects and presentations, such as:
 - digital images
 - recorded audio
 - clip art
 - movies
 - paint/draw
6. Use a variety of projection devices to present a multimedia project, such as:
 - televisions/monitors
 - multimedia projectors
 - LCD panels
 - large screen digital monitors
7. Use specialized applications and multimedia equipment to create and present multimedia projects, such as:
 - animation
 - web page creation
 - graphic design
 - other advanced applications
 - digitized sound
 - video production
 - studio production

Section 3

*Matrix
of
Instructional Technology
Standards
and
Benchmarks*



The beginning is the most important part of the work. *Plato*

ABC Unified School District

Educational Services/ Instructional Technology

Technology Standards and Benchmarks

Matrix of Technology Skills

This matrix provides a sequence and a grade-level designation for teaching the technology standards and benchmarks. Each benchmark is designated as Level One (I), Two (II) or Three (III). The matrix is intended as a guide for schools to use in their technology implementation plans. Individual schools may teach these skills and concepts at earlier or later grades as appropriate for their students.

Technology Skill Levels

- **Level One (I):** **Introduction** of a skill/concept through teacher modeling, demonstration, class discussion or teacher-directed use.
- **Level Two (II):** **Development** of skills/concepts that were introduced at the previous level, through guided practice, application to class room activities and coaching.
- **Level Three (III):** **Refinement, Extension and Application** of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of proficiency.

ABC UNIFIED SCHOOL DISTRICT
Educational Services/Instructional Technology

TECHNOLOGY LITERACY	K	1	2	3	4	5	6	7	8	9	10	11	12
1. Identify basic components and peripherals of computers and other technology devices, such as:	I	I	I	II	II	II	III	III	III	III	III	III	III
<ul style="list-style-type: none"> • keyboard • floppy drive, hard drive, CD ROM drive • monitor • printer • mouse • CD ROM and floppy disks • CPU 													
2. Develop a basic vocabulary of technology terms	I	I	I	II	II	II	III	III	III	III	III	III	III
3. Use technology appropriately and responsibly, including:	I	I	I	II	II	II	III	III	III	III	III	III	III
<ul style="list-style-type: none"> • safety concerns • classroom and lab procedures • proper use of equipment 													
4. Operate technology equipment using input and output devices, such as:	I	I	I	II	II	II	III	III	III	III	III	III	III
<ul style="list-style-type: none"> • mouse • keyboard • pointing devices • remote controls • printers • monitors • projection devices • adaptive devices 													
5. Demonstrate an understanding of basic computer operations and concepts, such as:	I	I	I	II	II	II	III	III	III	III	III	III	III
<ul style="list-style-type: none"> • start/shut down • boot/reboot • insert/eject disk • sleep 													
6. Use proper procedures to effectively navigate computer desktops	I	I	I	II	II	II	III	III	III	III	III	III	III
<ul style="list-style-type: none"> • launch and exit programs using proper sequence • use toolbars/menus/icons • open, close, move and resize windows 													

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application

= **Not Applicable**

Technology Literacy (cont'd)	K	1	2	3	4	5	6	7	8	9	10	11	12	
7. Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract, which include: <ul style="list-style-type: none"> • <i>ethical use of technology</i> • <i>plagiarism</i> • <i>privacy</i> • <i>copyright laws</i> • <i>vandalism</i> • <i>personal responsibility</i> 	I	I	I	II	II	II	III							
8. Use proper file and folder management to organize, access and use digital information, such as: <ul style="list-style-type: none"> • <i>view</i> • <i>move</i> • <i>save</i> • <i>create</i> • <i>copy</i> • <i>retrieve</i> • <i>rename</i> • <i>delete</i> • <i>print</i> 			I	I	II	II	II	III	III	III	III	III	III	
9. Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems		I	I	I	I	I	II	II	II	II	III	III	III	
10. Access information and communicate with others using local and global networks where available in the learning environment <ul style="list-style-type: none"> • <i>distinguish between stand-alone and networked computers</i> • <i>access network and remote equipment using a variety of resources and skills</i> 			I	I	I	II	II	II	II	III	III	III	III	
11. Demonstrate an understanding of the history and development of computer technology as it relates to: <ul style="list-style-type: none"> • <i>society</i> • <i>job displacement</i> • <i>career development</i> • <i>retraining</i> 				I	I	I	I	II	II	II	III	III	III	
12. Explore the use of specialized technology applications where available and appropriate, such as: <ul style="list-style-type: none"> • <i>programming</i> • <i>probeware and data collection devices</i> • <i>video conferencing</i> 					I	I	I	I	I	II	II	III	III	
13. Use technology resources to conduct career research								I	I	II	II	II	III	III

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application = **Not Applicable**

Technology Literacy (cont'd)	K	1	2	3	4	5	6	7	8	9	10	11	12
14. Explore and use technology resources to develop skills in various career paths, such as:							I	I	I	I	II	II	III
<ul style="list-style-type: none"> • CAD • music • video • robotics • web page design • engineering/aerospace • automotive • graphic • interior/fashion design technology • business applications • medical/health engineering 													
KEYBOARDING													
1. Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents	I	I	I	II	II	II	III						
<ul style="list-style-type: none"> • correct body position at the computer • hand position on the homerows keys • alphabetic and numeric keys • special function keys (capslock, command control, option, tab) • spacebar • return/enter • shift • arrows • delete/backspace • punctuation keys • type words, phrases and sentences • speed and accuracy 													
<p><i>Note on Keyboarding Benchmarks. While this standard contains a single benchmark, the bulleted list may be divided into grade level designations. Each bulleted item should be introduced, reinforced and applied until proficiency is attained.</i></p>													

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application

= **Not Applicable**

WORD PROCESSING	K	1	2	3	4	5	6	7	8	9	10	11	12
1. Communicate about word processing using developmentally appropriate terminology, such as: <ul style="list-style-type: none"> • <i>word processing</i> • <i>open</i> • <i>text</i> • <i>cursor</i> • <i>save</i> • <i>document</i> • <i>I-beam</i> • <i>print</i> 	I	I	I	II	II	II	II	III	III	III	III	III	III
2. Demonstrate an understanding of word processing by using basic skills, such as: <ul style="list-style-type: none"> • <i>open a document, enter text, save/save as and print</i> • <i>insert/import a graphic into a document</i> • <i>save to, and retrieve from, a designated folder or disk/storage device</i> • <i>format and edit a document</i> • <i>use keyboard shortcuts</i> • <i>save a document in multiple file formats</i> 	I	I	I	II	II	II	II	III	III	III	III	III	III
3. Create documents and presentations with word processing or desktop publishing software		I	I	I	I	II	II	II	II	III	III	III	III

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application

= **Not Applicable**

DATABASE		K	1	2	3	4	5	6	7	8	9	10	11	12
1. Communicate about databases using developmentally appropriate terminology					I	I	I	II	II	II	III	III	III	III
<ul style="list-style-type: none"> • <i>database file</i> • <i>record</i> • <i>field</i> • <i>sort</i> • <i>select/find/match</i> • <i>report forms</i> 														
2. Use a prepared database to enter, manipulate and retrieve information					I	I	I	II	II	II	III	III	III	III
3. Create a database to compile, organize, graph and report information						I	I	I	II	II	III	III	III	III
<ul style="list-style-type: none"> • <i>multiple fields and records</i> • <i>import/export database records</i> • <i>variety of database layouts</i> 														
SPREADSHEET		K	1	2	3	4	5	6	7	8	9	10	11	12
1. Communicate about spreadsheets using developmentally appropriate terminology					I	I	II	II	II	III	III	III	III	III
<ul style="list-style-type: none"> • <i>cell</i> • <i>row</i> • <i>column</i> • <i>formulas</i> • <i>functions</i> 														
2. Use a prepared spreadsheet to:					I	I	I	II	II	II	III	III	III	III
<ul style="list-style-type: none"> • <i>enter/edit data</i> • <i>create simple graphs</i> 														
3. Design, create and print a spreadsheet						I	I	I	II	II	II	III	III	III
<ul style="list-style-type: none"> • <i>formulas</i> • <i>functions</i> • <i>format text, headers/footers, alignment, color, fonts and borders</i> 														
4. Generate graphs, tables or charts							I	I	I	II	II	III	III	III
5. Import/export spreadsheets to other programs							I	I	I	II	II	III	III	III

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application = **Not Applicable**

TELECOMMUNICATIONS	K	1	2	3	4	5	6	7	8	9	10	11	12
1. Demonstrate an understanding of the basics of telecommunications, such as: <ul style="list-style-type: none"> • <i>terminology</i> • <i>Internet (WWW)</i> • <i>hardware and software</i> • <i>participation in a global community</i> • <i>computer networks (LAN & WAN)</i> • <i>email functions</i> • <i>potential as a learning tool</i> 			I	I	I	II	II	II	III	III	III	III	III
2. Communicate electronically using email systems		I	I	I	II	II	II	III	III	III	III	III	III
3. Access, retrieve and transmit information through telecommunications using online and networking resources, such as: <ul style="list-style-type: none"> • <i>Internet</i> <ul style="list-style-type: none"> § <i>basic terminology</i> § <i>search engines using Boolean operations</i> • <i>video conferencing</i> • <i>listservs, newsgroups</i> § <i>browsers</i> § <i>bookmarks</i> 			I	I	I	II	II	II	II	III	III	III	III
4. Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract			I	I	I	II	II	II	II	III	III	III	III
5. Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information				I	I	I	II	II	II	III	III	III	III
6. Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet <ul style="list-style-type: none"> • <i>upload/download files and documents</i> • <i>web page creation</i> 					I	I	II	II	II	II	III	III	III

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application

= **Not Applicable**

MULTIMEDIA		K	1	2	3	4	5	6	7	8	9	10	11	12
1. Communicate about multimedia tools and resources using developmentally appropriate terminology, such as: <ul style="list-style-type: none"> • <i>multimedia</i> • <i>animation</i> • <i>audio</i> • <i>video</i> • <i>storyboard</i> • <i>scanning</i> • <i>graphics</i> 		I	I	I	II	II	II	II	II	III	III	III	III	
2. Demonstrate proper use and care of multimedia equipment, such as: <ul style="list-style-type: none"> • <i>VCR</i> • <i>still camera</i> • <i>video camera</i> • <i>scanner</i> • <i>videodisc player</i> • <i>audio devices</i> • <i>video cassette</i> • <i>projection devices</i> • <i>digital camera</i> 		I	I	I	II	II	II	II	II	III	III	III	III	
3. Access information by using interactive CD ROM programs and other multimedia resources		I	I	I	II	II	II	II	II	III	III	III	III	
4. Use the components of a multimedia authoring software program to plan and design multimedia presentations, such as: <ul style="list-style-type: none"> • <i>backgrounds</i> • <i>cards/slides</i> • <i>transitions</i> • <i>buttons</i> • <i>storyboards</i> • <i>importing</i> 			I	I	I	II	II	II	II	III	III	III	III	
5. Create and edit resources for use in multimedia projects and presentations, such as: <ul style="list-style-type: none"> • <i>digital images</i> • <i>movies</i> • <i>recorded audio</i> • <i>paint/draw</i> • <i>clip art</i> 			I	I	I	II	II	II	II	III	III	III	III	
6. Use a variety of projection devices to present a multimedia project, such as: <ul style="list-style-type: none"> • <i>televisions/monitor</i> • <i>LCD panels</i> • <i>multimedia projectors</i> • <i>large screen digital monitors</i> 			I	I	I	I	II	II	II	III	III	III	III	
7. Use specialized applications and multimedia equipment to create and present multimedia projects, such as: <ul style="list-style-type: none"> • <i>animation</i> • <i>digitized sound</i> • <i>web page creation</i> • <i>video production</i> • <i>graphic design</i> • <i>studio production</i> • <i>other advanced applications</i> 				I	I	I	II	II	II	III	III	III	III	

Technology Skill Levels

Level One: **I** = Introduction

Level Two: **II** = Development

Level Three: **III** = Refinement, Extension and Application

= **Not Applicable**

Section 4

*Grade Level Cluster
of
Instructional Technology
Standards
and
Benchmarks
(K-2, 3-4, 5-6, 7-8, 9-12)*



We write our own destiny.
We become what we do. *Madame Chiang Kai-Shek*

K-2 GRADE LEVEL BENCHMARKS

All students in these grade levels should have the opportunity to learn the following technology skills and concepts. They are divided into Level One (I), Level Two (II) and Level Three (III).

Technology Skill Levels

Level One (I): Introduction of a skill/concept through teacher modeling, demonstration, class discussion or teacher-directed use.

Level Two (II): Development of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.

Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of proficiency.

Level One

Technology Literacy

- Identify basic components and peripherals of computers and other technology devices
- Develop a basic vocabulary of technology terms
- Use technology appropriately and responsibly
- Operate technology equipment using input and output devices
- Demonstrate an understanding of basic computer operations and concepts
- Use proper procedures to effectively navigate computer desktops
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract
- Use proper file and folder management to organize, access and use digital information (Grade 2 only)
- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems (Grades 1 & 2 only)
- Access information and communicate with others using local and global networks where available in the learning environment (Grade 2 only)

Keyboarding

- Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents

Word Processing

- Communicate about word processing using developmentally appropriate terminology
- Demonstrate an understanding of word processing by using basic skills
- Create documents and presentations with word processing or desktop publishing software (Grades 1 & 2 only)

Telecommunications

- Demonstrate an understanding of the basics of telecommunications (Grade 2 only)
- Communicate electronically using email systems (Grades 1 and 2 only)
- Access, retrieve and transmit information through telecommunications using online and networking resources (Grade 2 only)
- Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract (Grade 2 only)

Multimedia

- Communicate about multimedia tools and resources using developmentally appropriate terminology (Grades 1 & 2 only)
- Demonstrate proper use and care of multimedia equipment (Grades 1 & 2)
- Access information by using interactive CD ROM programs and other multimedia resources (Grades 1 & 2 only)
- Use the components of a multimedia authoring software program to plan and design multimedia presentations (Grade 2 only)
- Create and edit resources for use in multimedia projects and presentations (Grade 2 only)
- Use a variety of projection devices to present a multimedia project (Grade 2 only)

3-4 GRADE LEVEL BENCHMARKS

All students in these grade levels should have the opportunity to learn the following technology skills and concepts. They are divided into Level One (I), Level Two (II) and Level Three (III).

Technology Skill Levels

Level One (I): Introduction of a skill/concept through teacher modeling, demonstration, class discussion or teacher-directed use.

Level Two (II): Development of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.

Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of proficiency.

Level One

Technology Literacy

- Use proper file and folder management to organize, access and use digital information
- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems
- Access information and communicate with others using local and global networks where available in the learning environment
- Demonstrate an understanding of the history and development of computer technology
- Explore the use of specialized technology applications where available and appropriate (Grade 4 only)

Word Processing

- Create documents and presentations with word processing or desktop publishing software

Data Base

- Communicate about databases using developmentally appropriate terminology
- Use a prepared database to enter, manipulate and retrieve information
- Create a database to compile, organize, graph and report information (Grade 4 only)

Spreadsheet

- Communicate about spreadsheets using developmentally appropriate terminology
- Use a prepared spreadsheet
- Design, create and print a spreadsheet (Grade 4 only)

Telecommunications

- Demonstrate an understanding of the basics of telecommunications
- Communicate electronically using email systems (Grade 3)
- Access, retrieve and transmit information through telecommunications using online and networking resources
- Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract
- Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information
- Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet (Grade 4 only)

Multimedia

- Communicate about multimedia tools and resources using developmentally appropriate terminology (Grade 3 only)
- Demonstrate proper use and care of multimedia equipment (Grade 3 only)
- Access information by using interactive CD ROM programs and other multimedia resources (Grade 3 only)
- Use the components of a multimedia authoring software program to plan and design multimedia presentations
- Create and edit resources for use in multimedia projects and presentations
- Use a variety of projection devices to present a multimedia project
- Use specialized applications and multimedia equipment to create and present multimedia projects

Level Two

Technology Literacy

- Identify basic components and peripherals of computers and other technology devices
- Develop a basic vocabulary of technology terms
- Use technology appropriately and responsibly
- Demonstrate an understanding of basic computer operations and concepts
- Use proper procedures to effectively navigate computer desktops
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract
- Use proper file and folder management to organize, access and use digital information (Grade 4 only)

Keyboarding

- Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents

Word Processing

- Communicate about word processing using developmentally appropriate terminology
- Demonstrate an understanding of word processing by using basic skills

Telecommunications

- Communicate electronically using email systems (Grade 4 only)

Multimedia

- Communicate about multimedia tools and resources using developmentally appropriate terminology (Grade 4 only)
- Demonstrate proper use and care of multimedia equipment (Grade 4 only)
- Access information by using interactive CD ROM programs and other multimedia resources (Grade 4 only)

5 -6 GRADE LEVEL BENCHMARKS

All students in these grade levels should have the opportunity to learn the following technology skills and concepts. They are divided into Level One (I), Level Two (II) and Level Three (III).

Technology Skill Levels

Level One (I): Introduction of a skill/concept through teacher modeling, demonstration, class discussion or teacher-directed use.

Level Two (II): Development of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.

Level Three (III): Refinement, Extension and Application of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of proficiency.

Level One

Technology Literacy

- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems (Grade 5 only)
- Demonstrate an understanding of the history and development of computer technology
- Explore the use of specialized technology applications where available and appropriate
- Use technology resources to conduct career research (Grade 6 only)
- Explore and use technology resources to develop skills in various career paths (Grade 6 only)

Database

- Communicate about databases using developmentally appropriate terminology (Grade 5 only)
- Use a prepared database to enter, manipulate and retrieve information (Grade 5 only)
- Create a database to compile, organize, graph and report information

Spreadsheet

- Use a prepared spreadsheet (Grade 5 only)
- Design, create and print a spreadsheet
- Generate graphs, tables or charts
- Import/export spreadsheets to other programs

Telecommunications

- Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information (Grade 5 only)
- Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet (Grade 5 only)

Multimedia

- Use a variety of projection devices to present a multimedia project (Grade 5 only)
- Use specialized applications and multimedia equipment to create and present multimedia projects (Grade 5 only)

Level Two

Technology Literacy

- Identify basic components and peripherals of computers and other technology devices (Grade 5 only)
- Develop a basic vocabulary of technology terms (Grade 5 only)
- Use technology appropriately and responsibly (Grade 5 only)
- Operate technology equipment using input and output devices (Grade 5 only)
- Demonstrate an understanding of basic computer operations and concepts (Grade 5 only)
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract
- Use proper procedures to effectively navigate computer desktops (Grade 5 only)
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract (Grade 5)
- Use proper file and folder management to organize, access and use digital information
- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems (Grade 6)
- Access information and communicate with others using local and global networks where available in the learning environment

Keyboarding

- Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents (Grade 5 only)

Word Processing

- Communicate about word processing using developmentally appropriate terminology
- Demonstrate an understanding of word processing by using basic skills
- Create documents and presentations with word processing or desktop publishing software

Database

- Communicate about databases using developmentally appropriate terminology (Grade 6 only)
- Use a prepared database to enter, manipulate and retrieve information (Grade 6 only)

Spreadsheet

- Communicate about spreadsheets using developmentally appropriate terminology
- Use a prepared spreadsheet (Grade 6 only)

Telecommunications

- Demonstrate an understanding of the basics of telecommunications
- Communicate electronically using email systems
- Access, retrieve and transmit information through telecommunications using online and networking resources
- Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract
- Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information (Grade 6 only)
- Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet (Grade 6 only)

Multimedia

- Communicate about multimedia tools and resources using developmentally appropriate terminology
- Demonstrate proper use and care of multimedia equipment
- Access information by using interactive CD ROM programs and other multimedia resources
- Use the components of a multimedia authoring software program to plan and design multimedia presentations
- Create and edit resources for use in multimedia projects and presentations
- Use a variety of projection devices to present a multimedia project (Grade 6 only)
- Use specialized applications and multimedia equipment to create and present multimedia projects (Grade 6 only)

Level Three

Technology Literacy

- Identify basic components and peripherals of computers and other technology devices
- Develop a basic vocabulary of technology terms
- Operate technology equipment using input and output devices (Grade 6 only)
- Demonstrate an understanding of basic computer operations and concepts (Grade 6 only)
- Use technology appropriately and responsibly
- Use proper procedures to effectively navigate computer desktops (Grade 6 only)
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract (Grade 6 only)

Keyboarding

- Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents (Grade 6 only)

7-8 GRADE LEVEL BENCHMARKS

All students in these grade levels should have the opportunity to learn the following technology skills and concepts. They are divided into Level One (I), Level Two (II) and Level Three (III).

Technology Skill Levels

- **Level One (I): Introduction** of a skill/concept through teacher modeling, demonstration, class discussion or teacher-directed use.
- **Level Two (II): Development** of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.
- **Level Three (III): Refinement, Extension and Application** of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of proficiency.

Level One

Technology Literacy

- Explore the use of specialized technology applications where available and appropriate
- Use technology resources to conduct career research (Grade 7 only)
- Explore and use technology resources to develop skills in various career paths

Spreadsheet

- Generate graphs, tables or charts (Grade 7 only)
- Import/export spreadsheets to other programs (Grade 7 only)

Level Two

Technology Literacy

- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems
- Access information and communicate with others using local and global networks where available in the learning environment
- Demonstrate an understanding of the history and development of computer technology
- Determine the usefulness of technology in a learning activity and select appropriate technology resources
- Use technology resources to conduct career research (Grade 8 only)

Word Processing

- Create documents and presentations with desktop publishing or authoring software

Data Base

- Communicate about databases using developmentally appropriate terminology
- Use a prepared database to enter, manipulate and retrieve information
- Create a database to compile, organize, graph and report information

Telecommunications

- Demonstrate an understanding of the basics of telecommunications (Grade 7 only)
- Access, retrieve and transmit information through telecommunications using online and networking resources
- Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract
- Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information
- Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet

Multimedia

- Communicate about multimedia tools and resources using developmentally appropriate terminology
- Demonstrate proper use and care of multimedia equipment (Grade 7 only)
- Access information by using interactive CD ROM programs and other multimedia resources
- Use the components of a multimedia authoring software program to plan and design multimedia presentations
- Create and edit resources for use in multimedia projects and presentations
- Use a variety of projection devices to present a multimedia project
- Use specialized applications and multimedia equipment to create and present multimedia projects

Level Three

Technology Literacy

- Identify basic components and peripherals of computers and other technology devices used in the learning environment
- Develop a basic vocabulary of technology terms
- Use technology appropriately and responsibly
- Operate technology equipment using input and output devices
- Demonstrate an understanding of basic computer operations and concepts
- Use proper procedures to effectively navigate computer desktops
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract
- Use proper file and folder management to organize, access and use digital information

Keyboarding

- Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents

Word Processing

- Communicate about word processing using developmentally appropriate terminology
- Demonstrate an understanding of word processing by using basic skills

Spreadsheet

- Communicate about spreadsheets using developmentally appropriate terminology (Grade 8 only)

Telecommunications

- Demonstrate an understanding of the basics of telecommunications (Grade 8 only)
- Communicate electronically using email systems

Multimedia

- Demonstrate proper use and care of multimedia equipment (Grade 8 only)

9-12 GRADE LEVEL BENCHMARKS

All students in these grade levels should have the opportunity to learn the following technology skills and concepts. They are divided into Level One (I), Level Two (II) and Level Three (III).

Technology Skill Levels

- **Level One (I): Introduction** of a skill/concept through teacher modeling, demonstration, class discussion or teacher-directed use.
- **Level Two (II): Development** of skills/concepts that were introduced at the previous level, through guided practice, application to classroom activities and coaching.
- **Level Three (III): Refinement, Extension and Application** of skills/concepts developed at previous levels. Technology skills are integrated into all curricular areas at a high level of proficiency.

Level One

Technology Literacy

- Explore and use technology resources to develop skills in various career paths (Grade 9 only)

Level Two

Technology Literacy

- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems (Grade 9 only)
- Demonstrate an understanding of the history and development of computer technology (Grade 9 only)
- Explore the use of specialized technology applications where available and appropriate (Grades 9 & 10 only)
- Use technology resources to conduct career research (Grade 9 & 10 only)
- Explore and use technology resources to develop skills in various career path (Grades 10 & 11 only)

Spreadsheet

- Design, create and print a spreadsheet (Grade 9 only)
- Generate graphs, tables or charts (Grade 9 only)
- Import/export spreadsheets to other programs (Grade 9 only)

Telecommunications

- Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet (Grade 9 only)

Multimedia

- Demonstrate proper use and care of multimedia equipment (Grade 9 only)

Level Three

Technology Literacy

- Identify basic components and peripherals of computers and other technology
- Develop a basic vocabulary of technology terms
- Use technology appropriately and responsibly
- Operate technology equipment using input and output devices
- Demonstrate an understanding of basic computer operations and concepts
- Use proper procedures to effectively navigate computer desktops
- Understand and apply the policies in the ABC Unified School District Electronic Information Services Contract
- Use proper file and folder management to organize, access and use digital information
- Apply developmentally appropriate troubleshooting skills to solve basic hardware and software problems (Grades 10, 11 & 12 only)
- Access information and communicate with others using local and global networks where available in the learning environment projects
- Demonstrate an understanding of the history and development of computer technology (Grades 10 – 12 only)
- Explore the use of specialized technology applications where available and appropriate (Grades 11 & 12 only)
- Use technology resources to conduct career research (Grades 11 & 12 only)
- Explore and use technology resources to develop skills in various career paths (Grade 12 only)

Keyboarding

- Demonstrate proper keyboarding techniques and increase speed and accuracy to communicate information when composing or revising documents

Word Processing

- Communicate about word processing using developmentally appropriate terminology
- Demonstrate an understanding of word processing by using basic skills
- Create documents and presentations with word processing or desktop publishing software

Database

- Communicate about databases using developmentally appropriate terminology
- Use a prepared database to enter, manipulate and retrieve information
- Create a database to compile, organize, graph and report information

Spreadsheet

- Communicate about spreadsheets using developmentally appropriate terminology
- Use a prepared spreadsheet
- Design, create and print a spreadsheet (Grades 10 – 12 only)
- Generate graphs, tables or charts (Grades 10 – 12 only)
- Import/export spreadsheets to other programs (Grades 10 – 12 only)

Telecommunications

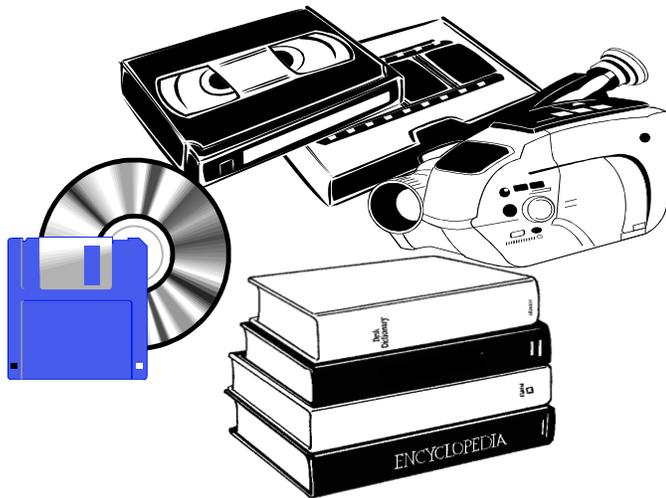
- Demonstrate an understanding of the basics of telecommunications
- Communicate electronically using email systems
- Access, retrieve and transmit information through telecommunications using online and networking resources
- Demonstrate appropriate and responsible use of telecommunication resources as outlined in the ABCUSD Electronic Information Services Contract
- Use critical thinking and problem solving skills to evaluate usefulness, validity and appropriateness of digital information
- Use telecommunications and other technology resources to create, collaborate and publish documents on the Internet (Grades 10 –12 only)

Multimedia

- Communicate about multimedia tools and resources using developmentally appropriate
- Demonstrate proper use and care of multimedia equipment
- Access information by using interactive CD ROM programs and other multimedia resources
- Use the components of a multimedia authoring software program to plan and design multimedia presentations
- Create and edit resources for use in multimedia projects and presentations
- Use a variety of projection devices to present a multimedia project
- Use specialized applications and multimedia equipment to create and present multimedia projects

Section 5

Glossary of Terms



The little things are infinitely important.

Arthur Conan Doyle

Glossary of Technology Terms

address:	A unique identifier needed to access the services of an Internet site or to send email. URL (Uniform Resource Locator) is another name for an Internet address.
ASCII:	American Standard Code for Information Interchange computer character set (text and symbols) that enables transfer of text and data between different computing systems. This international standard provides only very plain text without options for font modifications.
aspect ratio:	The ratio of the horizontal to vertical size of the screen.
bandwidth:	The capacity of a medium to transmit a signal. More informally, the mythical “size” of a network, and its ability to carry the files and messages of those who use it. A faster medium usually measured in bits per second (bps) can send bits more quickly and can accommodate more bits because the faster the bits move the more “space” there is to add others.
bookmark:	A placeholder to a particular URL or address that is saved in your browser software for access at a later time.
bps:	Bits per second. This is a measure of transfer speed that is commonly used in modems
browser:	Software that lets you access and view web pages. Netscape Navigator and Microsoft Internet Explorer are examples of browser software.
bulletin boards:	Used in networking to refer to a system for providing online announcements, with or without provision for user input. Internet hosts often provide them in addition to Usenet conferences. Sometimes referred to as BBSs
cache:	Storage area in both RAM (cache memory) and disc drives (cache controllers) that keeps frequently accessed instructions more readily accessible.
conferencing, electronic:	Any means of discussion among two or more people undertaken via computer and communication media. This includes video conferencing which because of equipment and bandwidth requirements is not yet in wide K-12 use.
CPU:	Central Processing Unit that encompasses a computer’s RAM, processing, and control circuitry, including the arithmetic-logic (ALU) unit
cyberspace:	Refers to the vast, worldwide reservoir of information being transmitted or stored by internetworked computers. The term was coined by William Gibson in his fantasy novel, Neuromancer to describe the world of computers, and the society that gathers around them.

database:	Any electronically stored and network-accessible collection of information. Network databases include collections of full-text documents, tables, lists, graphics, programs, etc.
dialups:	Organizations (usually commercial) which offer Internet access to computers connected via modems to standard voice phone lines. Dialups may be local or national.
distance learning:	A term used to describe instruction where teachers are physically or geographically separated from their students.
distributed networking:	Dividing up resources among many host computers on a network thereby reducing the burden on any one system.
document:	Used in reference to the World Wide Web, a document is any file containing text, media or hyperlinks that can be transferred from an HTTP server to a client program.
domain name:	The name divided by periods (dots) which uniquely identifies a machine on the Internet.
driver:	A memory resident program usually used to control a hardware device.
Email:	Electronic mail, written messages transmitted across networks (or within the same computer) and usually accessible only by the addressee either by using an online mail user agent (mail reader) or by downloading for reading and other processing offline.
ERIC:	The Educational Resources Information Center is a federally-funded national information system that provides access to an extensive body of education-related literature and bibliography. ERIC provides access via e-mail query, gopher server, telnet sites, and anonymous ftp sites.
ethernet:	Networking design originally developed by Xerox Corporation that is widely used for LANs because it can network a wide variety of computer types, is not proprietary, and uses components that are widely available from many sources.
FAQ:	This is the acronym for Frequently Asked Questions. A common feature on the Internet, FAQs are files of answers to commonly asked questions
file server:	A computer running a network operating system that enables other computers to access its files.
FTP:	(File Transfer Protocol), the command (and process) for moving files or programs across the Internet from a remote server to your own host.
GIF:	Graphics Interchange Format, a file type used for many of the graphics located on the Web.

HTML:	Hypertext Markup Language, language used to create hypertext and Web pages.
Internet:	The Internet, with capital I, is a set of networks all running the TCP/IP protocols, sharing the same underlying network address space as well as the same domain name space, and interconnected into an internet.
Internet 2:	The Internet 2 Consortium of more than 100 universities and other organizations collaborating to develop the next-generation Internet technology. In addition to bandwidth issues, the Consortium is dealing with such issues as audio and video integration, interactive distance learning, telemedicine, online research collaboration, and real-time simulation/modelling
Internet Service Provider:	Also known as ISP, this can be any business or enterprise that acts as a middleman between the Internet and the connecting individual or agency.
IP address:	Internet Protocol Address, allows Internet information to be delivered to the correct machine.
JPEG:	A file type used for graphics and digital images. JPEG uses compression to make graphic files smaller and easier to use. Compare with GIF.
keypals:	The electronic equivalent of penpals.
LAN:	Local Area Network; a network spanning a small area, usually a building or set of buildings, and usually using high speed but low cost media, and owned by the user organization
listserv:	An email system where users “subscribe” to join in on group messages. A message sent to the listserv is sent to every subscriber’s mail box.
mail lists:	A conference/discussion group in which all messages are sent to one e-mail address from which they are redistributed to the e-mail boxes of everyone who has subscribed.
modem:	A device which connects between a computer and a phone line to translate between the digital signal of the computer and the analog signal required for telephone transmission.
netiquette:	The informal rules of behavior while communicating or resource sharing on the Internet.
network:	A set of computers communicating over communication media (e.g., telephone, radio, cable) using common conventions called protocols.
newsgroups:	Electronic conferences/discussion groups similar to mailists. Newsgroup messages, called articles, are not mailed to a subscriber’s e-mailbox but are distributed to a subscribing system’s news server. This single copy is then accessed by all users on their network-connected machines.

online:	Being connected to another computer by some means (usually by a phone line or on a network)
print server:	A computer running a program that allows it to accept files to be printed from other workstations.
router:	A device (sometimes a dedicated computer) within a network that forwards packets of data of a specific protocol type (such as IP) from one network to another. It processes the data to determine how to forward packets toward their destination.
search engine:	WWW sites that allow users to type in a word or phrase and then search for other WWW sites linked to that word or phrase.
server:	A computer which offers services to another computer; also the software which enables it to do so. The computer served is a client which runs client software to obtain the services.
star topology:	A network configuration where each node is connected by a single cable link to a central location, called the hub.
TCP/IP:	(Transmission Control Protocol/Internet Protocol) The sets of software rules which enable computers to directly connect to networks which are interconnected through the Internet.
telecommunications:	Long-distance communications using electromagnetic systems – including wire (e.g. telephone or telegraph) and broadcast transmission (e.g. radio, television, or satellite).
telephony:	Real time telephone conversation across a network, especially networks on the Internet.
TIFF:	Tagged Image File Format graphics file format popularized by Aldus PageMaker for recognizing graphics from different types of software. TIFF graphics files typically have a tif extension
topology:	The general layout of the equipment and links forming a network.
URL:	Uniform Resource Locator, a unique address for a web page.
Virus:	A hardware/software infection designed intentionally to corrupt a computer, computer files, and/or networks.
WAN:	Wide Area Network; a network which connects LANs and single computer systems to other systems and other LANs outside the building.
World Wide Web (WWW):	A part of the Internet that uses Hypertext and hypermedia to create and display web pages.

Glossary of Video Terms

* condensed from *VIDEOMAKER*, August 1998

animation:	Visual special effect whereby still progressive images displayed in rapid succession create the illusion of movement
audio dub:	Result of recording over a prerecorded videotape soundtrack (all or a portion) without affecting prerecorded images.
audio/video dub:	Insert editing capability
back light:	Illumination from behind, above & usually to one side of the subject. Creates a sense of depth by lighting the hair and shoulders, separating the subject from the background area.
bleeding:	Video image imperfection characterized by blurring of color borders; colors spill over defined boundaries and “smear” into neighboring areas.
cue:	(1) Signal to begin, end or otherwise influence on-camera activity while recording. (2) Presetting specific starting points of audio or video material so it is easily available for immediate and precise playback when required.
cut:	(1) Instantaneous change from one shot to another. (2) Director’s command to immediately terminate on-camera action and recording
cuts-only editing:	Editing limited to immediate changes from one scene to another, without smoother image transition capabilities such as dissolving or wiping.
digitization:	The process of converting a continuous analog video or audio signal to digital data (ones and zeros) for computer storage.
dissolve:	Image transition effect of one picture disappearing as another appears.
dub:	Process or result of duplicating a videotape in its entirety. Editing technique whereby new audio or video replaces portion(s) of existing recording.
edit:	Process or result of selectively recording video and/or audio on finished videotape. Typically involves reviewing raw footage and transferring desired segments from master tape(s) onto new tape in a predetermined sequence.
8mm:	Compact videocassette format, popularized by camcorders, employing an 8 millimeter wide videotape.
essential area:	Boundaries within which contents of a television picture are sure to be seen, regardless of size differences in receiver displays. Also called “critical area” and “safe title area,” encompasses 80 percent of total screen.

fade:	Gradual diminishing or heightening of visual and/or audio intensity. “Fade out” or “fade to black,” “fade in” or “up from black” are common terms.
filter:	Transparent material, typically glass accessory, mounted at front of camcorder lens to regulate light passing through. Manipulates colors and image patterns, often for special effect purposes (gel).
frame:	Smallest increment of a television picture, equal to one-thirtieth of second.
frame-grabber:	Digitizer capable of capturing video images one frame at a time. Used for capturing still frames.
generation:	Relationship between the quality of information on a master video recording & a given copy of that master. A copy of a copy of the original master constitutes a second generational loss.
generation loss:	Degradation in picture and sound quality resulting from of the original master video recording.
Hi8 (high-band 8mm):	Improved version of 8mm videotape format characterized by higher luminance resolution for a sharper picture.
jump cut:	Unnatural, abrupt switch from and to shots identical in subject but slightly different in screen location.
MIDI (musical instrument digital interface) :	System of communication between digital electronic instruments allowing synchronization and distribution of digital musical information.
mix:	[1:audio] Combining two or more sound sources, with various channels controlled to achieve desired balance of single audio signal output. Executed with audio mixer. [2:video] Combining video signals from two or more sources.
model release:	Agreement to be signed by anyone appearing in a video work, protecting videomaker from right of privacy lawsuit. Specifies event, date, compensation provisions and rights being waived.
noise:	Undesirable video or audio signal interference; typically seen as snow, heard as hiss.
over-the-shoulder shot:	View of primary camera’s subject framed by another subject’s shoulder and back of head in foreground. Common in interview situations.
pan:	Horizontal camera pivot, right to left or left to right, from a stationary position. Follows a subject, redirects viewer’s attention from one subject to another, shows relationships between subjects and scans subjects too large to fit into one shot.

phono plug:	Also called “RCA” or “RCA phone,” popular cable connector for home audio as well as video components. Standard connection for direct audio/video inputs/outputs.
point of view (POV):	Shot perspective whereby the camera assumes the subject’s view, and thus viewers see what the subject sees as if through his/her/its eyes.
pre-roll:	(1) Back-up function of camcorders and VCRs when preparing for tape recording; ensures smooth transitions between scenes at edit points. (2) Usually for on-air applications. Starts tape playback earlier than necessary to ensure full operating speed and stabilization.
raw footage:	Pre-edited recordings, usually direct from camera.
roll:	Text or graphics, usually credits, that move up or down the screen. Typically moving from the bottom to top.
rule of thirds:	Composition consideration suggesting that a picture appeals most with its primary point of interest appearing off-center. With the screen divided into thirds, vertically and horizontally, important visual elements should be targeted at wherever imaginary lines cross.
scan converter:	Device that changes scan rate of a video signal, allowing computer graphics to be displayed on a standard video screen.
script:	Text specifying content of a production, used as a guide. May include character and setting profiles, production directives (audio, lighting, scenery, camera moves), as well as dialogue.
storyboard:	Series of cartoon-like sketches illustrating key visual stages (shots, scenes) of a planned production, accompanied by corresponding audio information.
S-video:	Also known as Y/C video, it is a component signal & the type employed with the Hi8 and S-VHS video formats. S-video transmits the chrominance & luminance portions of a video signal separately via multiple wires, maintaining a higher picture quality.
sweetening:	Post-production process of adding music and sound effects to, or otherwise enhancing, purifying, “massaging” a final audio track.
three-shot:	Camera view including 3 subjects, generally applicable to interview situations.
time code:	Synchronization system system, like a clock recorded on your videotape assigning corresponding hours, minutes, seconds and frame-number designations to each frame.
time line editing:	A computer-based method of editing in which video and audio clips are represented on a computer screen by bars proportional to the length of the clip. These bars can be moved and resized along a grid whose horizontal axis relates to the time of the program.

- two-shot:** Camera view including 2 subjects, generally applicable to interviews.
- voice-over:** Narration accompanying picture, heard above background sound or music, without the narrator being seen on camera.
- whip pan** [swish pan]: Extremely rapid camera movement from left to right or right to left, appearing as an image blur. Two such pans in the same direction, one moving from, the other moving to a stationary shot. When edited together, can effectively convey passage of time.
- windscreen:** Foam microphone shield, thwarts undesirable noise from wind and rapid mike movement.