

<b>Standards Overview</b>		
<p>✓ Standard 1: Fundamentals of Technology</p> <p><i>Students understand the operations and function of technology systems and are proficient in the use of technology.</i></p>	Pre-K - Grade 1 Grades 2-3 Grades 4-6 Grades 7-8 High School	Page 2 Page 7 Page 14 Page 22 Page 31
<p>✓ Standard 2: Social and Ethical Implications of Technology</p> <p><i>Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.</i></p>	Pre-K - Grade 1 Grades 2-3 Grades 4-6 Grades 7-8 High School	Page 3 Page 9 Page 15 Page 24 Page 32
<p>✓ Standard 3: Technology as a Productivity Tool</p> <p><i>Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.</i></p>	Pre-K - Grade 1 Grades 2-3 Grades 4-6 Grades 7-8 High School	Page 4 Page 10 Page 17 Page 26 Page 34
<p>✓ Standard 4: Technology as a Communication Tool</p> <p><i>Building on productivity tools, students will collaborate, publish and interact with peers, experts and other audiences using telecommunications and media.</i></p>	Pre-K - Grade 1 Grades 2-3 Grades 4-6 Grades 7-8 High School	Page 5 Page 11 Page 19 Page 28 Page 36
<p>✓ Standard 5: Technology as a Research Tool</p> <p><i>Students utilize technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.</i></p>	Pre-K - Grade 1 Grades 2-3 Grades 4-6 Grades 7-8 High School	Page 6 Page 12 Page 20 Page 29 Page 38
<p>✓ Standard 6: Technology as a Problem Solving/Decision Making Tool</p> <p><i>Students use technology to make and support decisions in the process of solving real-world problem.</i></p>	Pre-K - Grade 1 Grades 2-3 Grades 4-6 Grades 7-8 High School	N/A Page 13 Page 21 Page 30 Page 40

**Fundamentals of Technology – Grades Pre-K to 1**

Corresponding AZ Standard: 1T-R1, 1T-R2, 1T-F2

COMPETENCY GOAL: Students understand the operations and function of technology systems and are proficient in the use of technology.

## VALUES AND BENEFITS:

- Self-directed, continuous learning
- Enhanced personal growth

VOCABULARY: mouse, keyboard, monitor, toolbar, menu, window, folder, icon, spreadsheet, word processor, cassette player, CD player versus DVD versus video tape, video camera, CPU, printer, remote control, microphone

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Communicate about technology using developmentally appropriate and accurate terminology	PO 1 Use basic vocabulary related to technology	Observation: mouse control—drag and drop	Math and literacy activities at: <a href="http://www.internet4classrooms.com/morh2month.htm">www.internet4classrooms.com/morh2month.htm</a>
2. Use input devices and output devices successfully to operate technologies	PO 2 Identify the components of a computer (e.g., mouse, keyboard, monitor, CPU, printer)	Observation: mouse control—control position; one click	<a href="http://www.little-g.com/shockwave/loading.html">www.little-g.com/shockwave/loading.html</a>
3. Demonstrate functional operation of technology components	PO 1 Demonstrate start up and shut down procedures of basic technology components (e.g., computers, tape recorders, cassette players, VCRs)		I Spy Jr. ( <a href="http://www.scholastic.com">www.scholastic.com</a> )
	PO 2 Use devices to complete a task (e.g., mouse, keyboard, printer)		Claris Works for Kids (Mac) or Kid Pix (PC)
	PO 1 Demonstrate correct ergonomic use of technology (e.g., correct posture)		
	PO 2 Use multimedia resources (e.g., educational software)		
	PO 3 Access information sources (e.g., CD-ROMs, pre-bookmarked internet sites)		

***Social and Ethical Implications of Technology –  
Grades Pre-K to 1***

Corresponding AZ Standard: 2T-R1, 2T-R2, 2T-F1

COMPETENCY GOAL: Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

VALUES AND BENEFITS:

- Cultivation of ethical and responsible behavior
- Respect for the work of others

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Work cooperatively and collaboratively when using technology in the classroom</p> <p>2. Practice responsible use of technological devices</p> <p><i>Grade 1 only:</i></p> <p>3. Demonstrate respect for other students while using technology</p> <p>4. Practice responsible use of software</p>	<p>PO 1 Demonstrate respect for other students while using technology (e.g., take turns, share resources)</p> <p>PO 2 Demonstrate appropriate behavior when using technology (e.g., using only your documents or folders)</p> <p>PO 1 Operate equipment to ensure equipment is not harmed (e.g., do not bang on keys; no food or objects near equipment; care for disks and CD-ROM; use proper shut down procedures)</p> <p>PO 2 Recognize that damaging school equipment is destroying public property</p> <p>PO 3 Recognize that changing someone’s work without permission is unacceptable</p> <p>PO 1 Describe and practice respect for other students while using technology (do not copy software or documents without permission; do not erase or damage files)</p> <p>PO 1 Use equipment appropriately</p>	<p>Observation</p>	<p>Log in/out of individual user name (group name to the network)</p>

**Technology as a Productivity Tool – Grades Pre-K to 1**

Corresponding AZ Standard: 3T-R1, 3T-F1

COMPETENCY GOAL: Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.

## VALUES AND BENEFITS:

- Improved academic performance
- Adaptable to student learning needs

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Use technology drawing tools for communicating and illustrating</p> <p><i>Grade 1 only:</i></p> <p>2. Use prescribed technology tools for publishing and presenting</p>	<p>PO 1 Create a picture story using a drawing program with support from teacher, family members or student partner</p> <p>PO 2 Use a drawing program to add name and words to illustrations</p> <p>PO 1 Use a pre-designed template or stationery to publish a document (e.g., newsletter, greeting card, certificate)</p>	<ul style="list-style-type: none"> <li>• Match upper/lower case letters</li> <li>• Write the alphabet</li> <li>• Practice writing their name(s)</li> <li>• Have students make cards for holidays</li> </ul>	<p>Claris Works for Kids (Mac) or Kid Pix (PC)</p> <p>Learn to Read at Starfall  <a href="http://www.literacycenter.net">www.literacycenter.net</a>  <a href="http://www.starfall.com">www.starfall.com</a>  <a href="http://www.janbrett.com">www.janbrett.com</a>  <a href="http://www.pbskids.org">www.pbskids.org</a></p> <p>Bailey's Book House Software  Millie's Math House Software  (<a href="http://www.edmark.com">www.edmark.com</a>)  KidWorks Deluxe Software</p> <p><a href="http://www.enchantedlearning.com">www.enchantedlearning.com</a>  <a href="http://www.rif.com">www.rif.com</a></p> <p>Best Math Program Ever  Best Reading Program Ever  (Simon &amp; Schuster Interactive)  Thinkin' Things Collection 1 &amp; 2  (<a href="http://www.edmark.com">www.edmark.com</a>)</p>

**Technology as a Communication Tool – Grades Pre-K to 1**

Corresponding AZ Standard: 4T-F1

COMPETENCY GOAL: Building on productivity tools, students will collaborate, publish and interact with peers, experts, and other audiences using telecommunications and media.

VALUES AND BENEFITS:

- Collaborative problem solving
- Project-based learning

VOCABULARY: e-mail

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p><u>Grade 1 only:</u> 1. Communicate with others using telecommunications</p>	<p>PO 1 Communicate information electronically with support from teachers, family members or student partners (e.g., online projects, e-Pals, etc.)</p>		<p><a href="http://www.epals.com">www.epals.com</a> <a href="http://www.kids-learn.org">www.kids-learn.org</a></p>

**Technology as a Research Tool – Grades Pre-K to 1**

Corresponding AZ Standard: 5T-F1

COMPETENCY GOAL: Students use technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

## VALUES AND BENEFITS:

- Improved organization and planning (WebQuests, etc.)
- Increased quality and quantity of resources

VOCABULARY: Web page

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p><u>Grade 1 only:</u> 1. Recognize electronic information sources</p>	<p>PO 1 Identify potential sources of information about a topic (e.g., Web pages, CD-ROMs)</p>	<p>Observation of student use</p>	<p><a href="http://www.abc.net.au/schoolstv/animals/">www.abc.net.au/schoolstv/animals/</a> <a href="http://www.enchantedlearning.com">www.enchantedlearning.com</a> <a href="http://www.discoverykids.com">www.discoverykids.com</a> <a href="http://www.zooweb.com">www.zooweb.com</a> <a href="http://kids.msfc.nasa.gov">http://kids.msfc.nasa.gov</a></p>

## ***Fundamentals of Technology – Grades 2-3***

Corresponding AZ Standard: 1T-F1, 1T-F2, 1T-F3

COMPETENCY GOAL: Students understand the operations and function of technology systems and are proficient in the use of technology.

### VALUES AND BENEFITS:

- Self-directed, continuous learning
- Enhanced personal growth

VOCABULARY: disks, drives, RAM, ROM, CD-ROM port, CD-ROM & DVD

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Communicate about internal technology operations using developmentally appropriate and accurate terminology	PO 1 Use basic vocabulary related to internal operations of the technology (e.g., disks, drives, RAM, ROM, CD-ROM port, CD-ROM & DVD)		Computer & Internet Dictionary by Philip Margolis, creator of <a href="http://www.pcwebopaedia.com">www.pcwebopaedia.com</a> <a href="http://www.dictionary.com">www.dictionary.com</a>
2. Demonstrate functional operation of technology components	PO 1 Demonstrate correct ergonomic use of technology (e.g., correct posture, hand and feet position, proper height of keyboard, proper lifting and moving of equipment)	See Keyboarding Rubric for scoring posture, hand and feet position, proper height of keyboard, etc.	
	PO 2 Use multimedia resources (e.g., interactive books, educational software, and elementary multimedia encyclopedias)	Demonstrate use of interactive books, educational software and elementary multimedia encyclopedias	<a href="http://www.learningplanet.com">www.learningplanet.com</a> <a href="http://www.pbskids.org">www.pbskids.org</a> <a href="http://www.multiplication.com">www.multiplication.com</a> <a href="http://www.brainpop.com">www.brainpop.com</a>
	PO 3 Access information sources (e.g., CD-ROMS, encyclopedias, dictionaries, pre-bookmarked internet sites)	Pre-bookmarked Internet sites Software from CD-ROM	Oregon Trail Math Blaster
	PO 4 Communicate electronically under appropriate supervision (e.g., video, audio, email)		

*Fundamentals of Technology  
– Grades 2-3 Continued*

3. Use developmentally appropriate technology resources to access information and communicate electronically

PO 1 Operate keyboard and other common input and output devices (including adaptive devices for special needs when necessary)

- (a) Use device in response to software (e.g., point and click, arrow and enter/return keys)
- (b) Use keyboard effectively (e.g., knows locations and functions of keys; begins touch-typing strategies by grade three)

PO 2 Retrieve and save information

PO 3 Print documents, text or image

**Social and Ethical Implications of Technology – Grades 2-3**

Corresponding AZ Standard: 2T-F1, 2T-F2, 2T-F3

COMPETENCY GOAL: Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

## VALUES AND BENEFITS:

- Cultivation of ethical and responsible behavior
- Respect for the work of others

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Demonstrate respect for other students while using technology	PO 1 Describe and practice respect for other students while using technology (e.g., do not duplicate software or other documents without authorization; report behaviors that threaten the ability of others to legitimately use resources; allow peers to work uninterrupted; do not erase or damage files, documents or projects)	Observe student interaction and discuss appropriate respect versus inappropriate (disrespect for others)	Get a Web License: <a href="http://pbskids.org/license">http://pbskids.org/license</a> <a href="http://www.cybersmartkids.com.au">http://www.cybersmartkids.com.au</a>
2. Practice responsible use of software	PO 1 Use equipment appropriately (e.g., use for assignments and school work versus personal pleasure; do not send threats)  PO 2 Describe and practice legal and ethical behaviors when using technology (e.g., do not copy, alter, delete, or move another person's work)  PO 3 Demonstrate and practice safe and correct security procedures (e.g., protect password)	Evaluate student use of equipment and verbalize legal/ethical behaviors  Assess student demonstrations of security procedures	
3. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide	PO 1 Describe 3 to 5 uses of technology in daily life  PO 2 Discuss positive and negative impact of technologies such as television and computers on daily life (e.g., negative health impacts; safe Internet use—such as knowing what information is safe to share when using email or “chatting” with strangers)	Quantify and share student responses  Observe participation of students in discussion of impacts of technology	Adventures in Internet Safety <a href="http://disney.go.com/surfswell">http://disney.go.com/surfswell</a>

**Technology as a Productivity Tool – Grades 2-3**

Corresponding AZ Standard: 3T-F1, 3T-F2, 3T-F3

COMPETENCY GOAL: Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.

## VALUES AND BENEFITS:

- Improved academic performance
- Adaptable to student learning needs

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Use technology writing or drawing tools for communicating and illustrating	<p>PO 1 Use word processing to create a document and, where developmentally appropriate, use editing tools</p> <p>PO 2 Insert a graphic into a word processing document</p>	<ul style="list-style-type: none"> <li>• Students write stories and essays</li> <li>• Students research and write skits</li> </ul>	Microsoft Office Online: <a href="http://www.abbyandtess.com">www.abbyandtess.com</a>
2. Use technology tools for data collection and basic analysis	PO 1 Use a spreadsheet or database application to perform simple data analysis (e.g., comparisons, collections, graphs, and charts)	<ul style="list-style-type: none"> <li>• Write news articles, flyers, newsletters</li> </ul>	
3. Use technology tools for publishing and presenting information	<p>PO 1 Use a pre-designed template or stationery to publish a document (e.g., newsletter, slide show, hyperstack, video)</p> <p>PO 2 Create a multimedia product with support from teachers, family or student partners (e.g., slide show, hyperstack, video)</p>	<ul style="list-style-type: none"> <li>• Conduct student surveys, tally, and publish results</li> <li>• Create presentations on various projects/reports</li> <li>• Create multimedia presentations to music</li> <li>• Create presentations on field trips (virtual or actual)</li> </ul> <p>Evaluate completeness of documents and projects</p>	

**Technology as a Communication Tool – Grades 2-3**

Corresponding AZ Standard: 4T-F1, 4T-F2

COMPETENCY GOAL: Building on productivity tools, students will collaborate, publish and interact with peers, experts, and other audiences using telecommunications and media.

## VALUES AND BENEFITS:

- Collaborative problem solving
- Project-based learning

## VOCABULARY:

Videoconferencing

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Communicate with others using telecommunications, with support from teachers, family members, or student partners</p> <p>2. Use technology tools for individual and collaborative communication activities to share products with audiences inside and outside the classroom</p>	<p>PO 1 Communicate information electronically with support from teachers, family members, or student partners (e.g., email, videoconferencing, Web page)</p> <p>PO 1 Plan, design, and present an academic product to classroom or community (e.g., slide show, progressive story, drawings, story illustrations, video production, digital images)</p>	<p>Evaluate student communication skills using electronic means</p> <p>Observe student presentations for accuracy, completeness, appropriateness, creativity</p>	<p><a href="http://www.flatstanley.com">www.flatstanley.com</a></p>

**Technology as a Research Tool – Grades 2-3**

Corresponding AZ Standard: 5T-E1

COMPETENCY GOAL: Students use technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

VALUES AND BENEFITS:

- Improved organization and planning (WebQuests, etc.)
- Increased quality and quantity of resources

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Locate information from electronic sources	PO 1 Identify potential sources of information about a topic (e.g., video or cassette tapes, Web pages, CD-ROMs)  PO 2 Locate information in a resource selected by a teacher (e.g., Web page, CD-ROM)		<a href="http://www.yahooligans.com">www.yahooligans.com</a> <a href="http://www.ithaki.net/kids/">www.ithaki.net/kids/</a> <a href="http://www.britannica.com">www.britannica.com</a> Encyclopedia of Nature Encyclopedia of Science

**Technology as Problem Solving/Decision Making Tool – Grades 2-3**

Corresponding AZ Standard: 6T-F1

COMPETENCY GOAL: Students use technology to make and support decisions in the process of solving real-world problems.

VALUES AND BENEFITS:

- Interactive value of technology
- Increased availability of resources (universities, expert systems, etc.)

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Use technology resources for problem-solving, self-directed learning, and extended learning activities</p>	<p>PO 1 Based on a class-defined problem, use technology to:</p> <ul style="list-style-type: none"> <li>a) collect data</li> <li>b) interpret data</li> <li>c) express a solution to the problem</li> </ul> <p>PO 2 Based on a problem selected by the student, use technology to:</p> <p>collect data</p> <ul style="list-style-type: none"> <li>a) collect data</li> <li>b) interpret data</li> <li>c) express a solution to the problem</li> </ul>	<ul style="list-style-type: none"> <li>a) Quantify amount and quality of data collected in response to class-defined or student selected problem</li> <li>b) Identify student's data interpretation and the technology tools used</li> <li>c) Have student verbalize solution and then use word-processing or presentation software to express solution</li> </ul>	<p>Microsoft Word, Excel, PowerPoint</p> <p>Internet or software resources</p>

**Fundamentals of Technology – Grades 4-6**

Corresponding AZ Standard: 1T-E1, 1T-E2, 1T-E3

COMPETENCY GOAL: Students understand the operations and function of technology systems and are proficient in the use of technology.

VALUES AND BENEFITS:

- Self-directed, continuous learning
- Enhanced personal growth

VOCABULARY: FireWire, USB, parallel, serial, scanning, digitizing, OCR, network, infrastructure, Internet, Intranet, LAN, WAN, Ethernet, firewall, server, TCP-IP, peripheral devices, on-line help, use documentation

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Communicate about technology using developmentally appropriate and accurate terminology</p> <p>2. Demonstrate increasingly sophisticated operation of technology components</p> <p>3. When a system is not working properly, demonstrate understanding of hardware, software and connectivity problem solving processes</p>	<p>PO 1 Use basic vocabulary related to technology</p> <p>PO 2 Use basic vocabulary related to systems</p> <p>PO 1 Use touch typing strategies to reach a minimum of 15 Words Per Minute (WPM) while meeting school-identified standard for accuracy</p> <p>PO 2 Retrieve and save information remotely (e.g., network servers, Internet, Intranet, peripheral devices)</p> <p>PO 3 Demonstrate functional operation of technology devices (e.g., presentation devices, digital cameras, scanners, document cameras, scientific probes)</p> <p>PO 1 Use troubleshooting strategies to solve</p> <ol style="list-style-type: none"> <li>1. Application problems</li> <li>2. Hardware problems</li> <li>3. Basic connectivity problems</li> </ol>	<p>Keyboarding Rubric (Appendix)</p>	<p><a href="http://www.intel.com/education/join/index.htm">http://www.intel.com/education/join/index.htm</a></p> <p><b>Software:</b> Mavis Beacon Teaches Typing Type to Learn Ultra Key or Teacher Created Drills</p>

**Social and Ethical Implications of Technology – Grades 4-6**

Corresponding AZ Standard: 2T-E1, 2T-E2, 2T-E3

COMPETENCY GOAL: Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

VALUES AND BENEFITS:

- Cultivation of ethical and responsible behavior
- Respect for the work of others

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use</p> <p>2. Exhibit legal and ethical behaviors when using technology and information and discuss consequences of misuse</p>	<p>PO 1 Explain the purpose of an Acceptable Use Agreement / Policy and the consequences of inappropriate use</p> <p>PO 2 Describe and practice safe Internet/Intranet usage</p> <p>PO 3 Describe and practice "netiquette" when using the Internet and electronic mail</p> <p>PO 1 Follow the rules for deciding when permission is needed for using the work of others</p> <p>PO 2 Obtain permission to use work of others</p> <p>PO 3 Provide complete citations from electronic media</p>	<p>Interactive Exercise - Get a Web License--  <a href="http://pbskids.org/license">http://pbskids.org/license</a></p> <p>Include permission letter(s) in at least one product during the year</p>	<p>Review Diocese of Tucson Compute &amp; Information Resources Acceptable Use Policy</p> <p><a href="http://www.cybersmartkids.com.au/">www.cybersmartkids.com.au/</a></p> <p>Internet Safety Section --  <a href="http://www.internet101.org/">www.internet101.org/</a></p> <p><a href="http://www.protectkids.com/youthsafety/index.htm">www.protectkids.com/youthsafety/index.htm</a></p> <p>MLA Style Electronic Formats--  <a href="http://www.westwords.com/guffey/mla.html">www.westwords.com/guffey/mla.html</a></p> <p>Copyright Bay and Fair Use Harbor--  <a href="http://www.stfrancis.edu/cid/copyrightbay/index.htm">www.stfrancis.edu/cid/copyrightbay/index.htm</a></p>

<p><i>Social and Ethical Implications of Technology – Grades 4-6 Continued</i></p> <p>3. Demonstrate knowledge of current changes in technologies and effect those changes have on the workplace and society</p>	<p>PO 4 Explain copyright laws and “fair use” guidelines</p> <p>PO 5 Describe copyright guidelines for multimedia creation and Internet development</p> <p>PO 6 State personal consequences (e.g., fines, loss of privileges, grade reduction, academic probation) related violations of:</p> <p>(a) Copyright (e.g., sheet music, prerecorded music, print, video, images)</p> <p>(b) Password security</p> <p>(c) Privacy (e.g., student files on a network, floppy disk and hard drive)</p> <p>(d) Internet usage (e.g., inappropriate postings, accessing inappropriate material)</p> <p>PO 7 Discuss the negative impact of unauthorized intrusions</p> <p>PO 1 Compare information technologies from past to present and describe the implications of computer power doubling every 18 months (Moore’s Law) (e.g., size, speed, cost)</p> <p>PO 2 Describe the impact of technology use on individuals at home and in the workplace</p> <p>PO3 Discuss the social implications of the “digital divide”</p>	<p>Annually, students collaborate to determine/revise consequences for violations within their school (including attempts to bypass filtering technology).</p> <p>Review and discuss examples of technology copyright issues in multiple industries from overview at: <a href="http://www.benedict.com/">http://www.benedict.com/</a></p> <p>Review and discuss impacts of Technology through various Online Exhibits and Archives at: <a href="http://www.thetech.org/exhibits/online/">www.thetech.org/exhibits/online/</a></p> <p>Participate in PBS Digital Divide Project found at: <a href="http://www.pbs.org/digitaldivide/">http://www.pbs.org/digitaldivide/</a></p>	<p>Security and Ethics Unit at <a href="http://www.kidzonline.com/TechTraining/">www.kidzonline.com/TechTraining/</a></p> <p><a href="http://www.pbs.org/wgbh/amex/telephon/timeline/">www.pbs.org/wgbh/amex/telephon/timeline/</a></p> <p>Science Odyssey <a href="http://www.bps.org/wgbh/aso/">http://www.bps.org/wgbh/aso/</a></p> <p><a href="http://www97.intel.com/discover/JourneyInsic/TJI_TechSociety/default.aspx">www97.intel.com/discover/JourneyInsic/TJI_TechSociety/default.aspx</a></p> <p>Digital Divide Links/Resources: <a href="http://www.pbs.org/digitaldivide/links.html">http://www.pbs.org/digitaldivide/links.html</a></p> <p>AZ Standards Recommended links: <a href="http://literacy.kent.edu/Oasis/Workhops/copytoc.html">http://literacy.kent.edu/Oasis/Workhops/copytoc.html</a> and <a href="http://www.copyright.gov/circs/">http://www.copyright.gov/circs/</a></p>
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**Technology as a Productivity Tool – Grades 4-6**

Corresponding AZ Standard: 3T-E1, 3T-E2, 3T-E3, 3T-E4

COMPETENCY GOAL: Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.

## VALUES AND BENEFITS:

- Improved academic performance
- Adaptable to student learning needs

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Use formatting capabilities of technology tools for communicating and illustrating	PO 1 Use word processing editing tools to revise a document	Word Processing Checklist (Appendix)	Microsoft Word
	PO 2 Design a word processing document with graphical elements	Microsoft Word Templates (newsletters, letters, reports, etc.) <a href="http://office.microsoft.com">http://office.microsoft.com</a>	Word Processing Help in menu bar icons
2. Use a variety of technology tools for data collection and analysis	PO 1 Use technology devices to collect and record data	Demonstrate use of cut and paste, tabs and margins, font size, font style, delete and undo, selecting, spell check, click and drag	See documentation of instrument or Web site help on Internet
		Demonstrate beginner skills in using clip art, digital photographs, symbols, text wrap, cropping, sizing, and other drawing tools	On-line weather cams at <a href="http://www.wetterklima.de/cams/camera_ngl.html">www.wetterklima.de/cams/camera_ngl.html</a>
		Investigate and report on at least one of the following devices used to record data: PDA (personal digital assistant), Webcams, GPS and Internet	

<p><i>Technology as a Productivity Tool – Grades 4-6 Continued</i></p> <p>3. Publish and present information using technology tools</p> <p>4. Use technology tools to support system analysis and modeling</p>	<p>PO 2 Create and use a spreadsheet to analyze data</p> <p>PO 3 (<i>OPTIONAL</i>) Create a database with multiple fields to manipulate data in a variety of ways</p> <p>PO 1 Design and create a multimedia presentation or Web page using multiple digital sources</p> <p>PO 2 Publish or present the above production</p> <p>PO 1 Manipulate several variables in a computer simulation to reach a desired outcome</p>	<p>Spreadsheet Checklist (Appendix)</p> <p>Begin use of spreadsheets to analyze data (e.g., formulas, charts, graphs)</p> <p>(<i>OPTIONAL</i>) Demonstrate use of a database with multiple fields to manipulate data (e.g., sort, merge, list, report)</p> <p>Create a multimedia presentation or Web Page using at least one digital source (e.g., camera, video, scanner, CD-ROM, Internet)</p> <p>Students create simple spreadsheet designed to demonstrate manipulation of a variable</p>	<p>Microsoft Excel</p> <p>(<i>OPTIONAL</i>) (if software is available Microsoft Access or File Maker Pro</p> <p>Microsoft PowerPoint</p> <p>Free Web builder and hosting:  <a href="http://www.tripod.lycos.com/">http://www.tripod.lycos.com/</a>  <a href="http://www.angelfire.lycos.com/">http://www.angelfire.lycos.com/</a></p> <p><u>How to Do Everything With Digital Photography</u> by David Hus  <a href="http://www.w3schools.com/">http://www.w3schools.com/</a>  <a href="http://www.webgenies.co.uk">www.webgenies.co.uk</a></p> <p>2D and 3D Software  Sim City Series</p> <p>Microsoft Excel</p>
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**Technology as a Communication Tool – Grades 4-6**

Corresponding AZ Standard: 4T-E1, 4T-E2, 4T-E3

COMPETENCY GOAL: Building on productivity tools, students will collaborate, publish and interact with peers, experts, and other audiences using telecommunications and media.

- VALUES AND BENEFITS:
- Collaborative problem solving
  - Project-based learning

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Use telecommunications efficiently and effectively to access remote information and communicate with others in support of facilitated and independent learning</p>	<p>PO 1 Communicate independently via e-mail, Internet, and/or videoconference with people in a remote location</p>	<p>Communicate with teachers and peers through Intra/Internet</p>	<p><a href="http://www.think.com/en_us/">http://www.think.com/en_us/</a> (free intranet for schools by Oracle)</p>
<p>2. Use technology tools for individual and collaborative writing, communication and publishing activities to create curricular related products for audiences inside and outside the classroom</p>	<p>PO 1 Plan, design and present an academic product using technology tools</p>	<p>Presentation/Graphics Checklist (Appendix)</p>	<p>Microsoft PowerPoint</p>
<p>3. Collaboratively use telecommunications and online resources</p>	<p>PO 1 Request collaborative exchanges among people in local and/or remote locations PO 2 Communicate electronically to collaborate with experts, peers and others to analyze data and/or develop an academic product PO 3 Present an academic product to share data and/or solutions</p>	<p>Incorporate collaborative exchange with students in another state or country into social studies, language, etc. project each year</p>	<p>Multimedia Educational Resource for Learning and Online Teaching <a href="http://www.merlot.org">www.merlot.org</a> (<i>teacher resource for locating sources for collaborative exchange</i>)</p>

**Technology as a Research Tool – Grades 4-6**

Corresponding AZ Standard: 5T-E1, 5T-E2

COMPETENCY GOAL: Students use technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

## VALUES AND BENEFITS:

- Improved organization and planning (WebQuests, etc.)
- Increased quality and quantity of resources

## VOCABULARY:

Boolean logic

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Locate information from electronic resources	PO 1 Identify electronic research resources PO 2 Define subject searching and devise a search strategy to locate information using available electronic research resources PO 3 Explain the difference between subject and keyword searching PO 4 Construct keyword searches including basic Boolean logic using available electronic research resources PO 5 Identify the author, copyright date and publisher of information located in electronic Internet resources	Online WebQuest on General Web Search Tools: <a href="http://www.kn.pacbell.com/wired/21stcent/lgensearch.html">www.kn.pacbell.com/wired/21stcent/lgensearch.html</a>  Demonstrate beginner skills in subject searching on child appropriate search engine	On-line encyclopedias: <a href="http://www.worldbook.com">www.worldbook.com</a> <a href="http://www.encyclopedia.com">www.encyclopedia.com</a>  <a href="http://www.refdesk.com">www.refdesk.com</a>  Kathy Schrock's Guide for Educator: (PowerPoint lessons available) <a href="http://school.discovery.com/schrockuide/shows.html">http://school.discovery.com/schrockuide/shows.html</a>
2. Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources	PO 1 Create citations for electronic research sources following a prescribed format PO 2 Gather research from a variety of electronic sources and identify the most appropriate information for answering the research question PO 3 Obtain permission, when appropriate, to use the work of others PO 4 Identify the components of a URL to determine the source of information PO 5 Identify the author of the information found from electronic resources and determine whether the author is an authority, displays bias and is a primary or secondary source		<a href="http://www.apastyle.org/electmedia.html">http://www.apastyle.org/electmedia.html</a>

**Technology as Problem Solving/Decision Making Tool – Grades 4-6**

Corresponding AZ Standard: 6T-E1

COMPETENCY GOAL: Students use technology to make and support decisions in the process of solving real-world problems.

VALUES AND BENEFITS:

- Interactive value of technology
- Increased availability of resources (universities, expert systems, etc.)

VOCABULARY:

Expert systems, artificial intelligence, wizard

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Determine when technology is useful and select and use the appropriate tools and technology resources to solve problems	PO 1 Based on a problem selected by the student, identify and use appropriate technology tools to a) collect data b) interpret data c) develop a solution to the problem d) present findings	Students explore advantages of expert system resources in the field of health at Web sites such as <a href="http://www.mayoclinic.com">www.mayoclinic.com</a> , <a href="http://www.healthfinder.gov">www.healthfinder.gov</a> , and articulate how these resources benefit society  Students develop thesis statement, what they hope to accomplish and a list of terms prior to beginning research on the Internet	<a href="http://en.wikipedia.org/wiki/Expert_systems">http://en.wikipedia.org/wiki/Expert_systems</a>

## ***Fundamentals of Technology – Grades 7-8***

Corresponding AZ Standard: 1T-E1, 1T-E2, 1T-E3

COMPETENCY GOAL: Students understand the operations and function of technology systems and are proficient in the use of technology.

### VALUES AND BENEFITS:

- Self-directed, continuous learning
- Enhanced personal growth

VOCABULARY: FireWire, USB, parallel, serial, scanning, digitizing, OCR, network, infrastructure, Internet, Intranet, LAN, WAN, Ethernet, firewall, server, TCP-IP, peripheral devices, on-line help, use documentation

### *Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Communicate about technology using developmentally appropriate and accurate terminology</p> <p>2. Demonstrate increasingly sophisticated operation of technology components</p>	<p>PO 1 Use basic vocabulary related to technology</p> <p>PO 2 Use basic vocabulary related to systems</p> <p>PO 1 Use touch typing strategies to reach a minimum of 25 adjusted Words Per Minute</p> <p>PO 2 Retrieve and save information remotely to network servers, Internet, Intranet, peripheral devices</p> <p>PO 3 Demonstrate functional operation of technology devices (e.g., presentation devices, digital cameras, scanners, document cameras, scientific probes)</p>	<p>By end of Grade 8, meet school-identified standard for Words Per Minute and Accuracy Grading Scale</p> <p>Demonstrate how to access network servers, Internet, Intranet and peripheral devices</p> <p>Demonstrate the use of presentation devices, digital cameras, scanners, document cameras, scientific probes</p>	<p>Computer &amp; Internet Dictionary 3<sup>rd</sup> Edition by Philip E. Margolis <a href="http://www.pcwebopaedia.com">www.pcwebopaedia.com</a> or on line: <a href="http://www.dictionary.com">www.dictionary.com</a></p> <p>Keyboarding software such as Type to Learn, Mavis Beacon, UltraKey</p> <p>Timed 2 or 3 minute typing tests</p> <p><u>20<sup>th</sup> Century Typewriting</u>, 9<sup>th</sup> Edition by Lessenberry, Crawford, Ericksor</p> <p><u>How the Internet Works</u> 7<sup>th</sup> Edition by Preston Gralla</p> <p><u>How Computers Work</u> 7<sup>th</sup> Edition by Ron White</p> <p><a href="http://www.kids-online.net">www.kids-online.net</a></p> <p><a href="http://www.intel.com">www.intel.com</a></p>

*Fundamentals of  
Technology – Grades 7-8  
Continued*

3. When a system is not working properly, demonstrate understanding of hardware, software and connectivity problem solving processes

PO 1 Use troubleshooting strategies to solve

1. Application problems
2. Hardware problems
3. Basic connectivity problems

Show troubleshooting strategies to solve application, hardware, and basic connectivity problems through the use of file management strategies, online help strategies, software documentation, help menus and collaboration with others

Help features in menu bar or icon options for application software

And/or

Documentation on how to contact technical support or on-line FAQ

And/or

Identify online user-net or list-serv groups for possible assistance

**Social and Ethical Implications of Technology – Grades 7-8**

Corresponding AZ Standard: 2T-E1, 2T-E2, 2T-E3

COMPETENCY GOAL: Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

VALUES AND BENEFITS:

- Cultivation of ethical and responsible behavior
- Respect for the work of others

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use	PO 1 Explain the purpose of an Acceptable Use Agreement / Policy and the consequences of inappropriate use	Explain/discuss why Acceptable User Agreement is important	Review Diocese of Tucson Computer & Information Resources Acceptable Use Policy (Appendix A to Diocese of Tucson Catholic Schools Technology Plan – Update July 2004)  <a href="http://www.cybersmartkids.com.au">http://www.cybersmartkids.com.au</a>
	PO 2 Describe and practice safe Internet/Intranet usage	Rationalize what is inappropriate or harmful material; reveal personal information; follow Diocese Acceptable Use Policy	
2. Exhibit legal and ethical behaviors when using technology and information and discuss consequences of misuse	PO 3 Describe and practice "netiquette" when using the Internet and electronic mail	List in detail appropriate versus inappropriate behavior while using the Internet or E-mail	and  <a href="http://www.copyright.gov/circs/">http://www.copyright.gov/circs/</a>
	PO 1 Follow the rules for deciding when permission is needed for using the work of others	Determine if an Internet site specifies whether permission is required to copy or use its information, including photographs	
	PO 2 Obtain permission to use work of others	Explain/discuss why students should respect and follow all copyright laws	
	PO 3 Provide complete citations from electronic media	Present and illustrate age appropriate standardized reference formats for citing source of information	

<p><i>Social and Ethical Implications of Technology – Grades 7-8 Continued</i></p> <p>3. Demonstrate knowledge of current changes in technologies and effect those changes have on the workplace and society</p>	<p>PO 4 Explain copyright laws and “fair use” guidelines</p> <p>PO 5 Describe copyright guidelines for multimedia creation and Internet development</p> <p>PO 6 State personal consequences (e.g., fines, loss of privileges, grade reduction, academic probation) related violations of:  (e) Copyright (e.g., sheet music, prerecorded music, print, video, images)  (f) Password security  (g) Privacy (e.g., student files on a network, floppy disk and hard drive)  (h) Internet usage (e.g., inappropriate postings, accessing inappropriate material)</p> <p>PO 7 Discuss the negative impact of unauthorized intrusions</p> <p>PO 1 Compare information technologies from past to present and describe the implications of computer power doubling every 18 months (Moore’s Law) (e.g., size, speed, cost)</p> <p>PO 2 Describe the impact of technology use on individuals at home and in the workplace</p> <p>PO3 Discuss the social implications of the “digital divide”</p>	<p>Explain/discuss copyright guidelines in relationship to print, video, computer software, multimedia project, music</p> <p>Warrant consequences such as fines, loss of privileges, grade reduction, academic probation in regards to violations of copyright laws, password security, privacy and Internet usage</p> <p>Show how to find computer information which pertains to a computer's processing speed, RAM, hard drive space and cost</p> <p>Compare and contrast technologies used in a home versus a workplace in regards to how a computer has replaced the TV for some individuals; free time is spent using technology versus outdoor activities; jobs have been created and/or eliminated due to technology advances; possible infringement of privacy</p> <p>Present/discuss pros and cons of homes and schools with much technology and connectivity versus those with less or none</p>	<p>Review Diocese of Tucson Computer &amp; Information Resources Acceptable Use Policy (Appendix A to Diocese of Tucson Catholic Schools Technology Plan – Update July 2004)</p> <p><u><a href="#">A History of Modern Computing</a></u>  2<sup>nd</sup> Edition (History of Computing) by Paul E. Ceruzzi</p> <p><u><a href="http://www.pbs.org/wgbh/amex/telephon/timeline/">www.pbs.org/wgbh/amex/telephon/timeline/</a></u></p> <p><u><a href="http://www.thetech.org">www.thetech.org</a></u></p> <p>Science Odyssey  <u><a href="http://www.bps.org/wgbh/aso/">http://www.bps.org/wgbh/aso/</a></u></p>
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**Technology as a Productivity Tool – Grades 7-8**

Corresponding AZ Standard: 3T-E1, 3T-E2, 3T-E3, 3T-E4

COMPETENCY GOAL: Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.

## VALUES AND BENEFITS:

- Improved academic performance
- Adaptable to student learning needs

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Use formatting capabilities of technology tools for communicating and illustrating	<p>PO 1 Use word processing editing tools to revise a document</p> <p>PO 2 Design a word processing document with graphical elements</p>	<p>Word Processing Checklist (Appendix)</p> <p>Routinely demonstrate use of cut and paste, tabs and margins, font size, font style, delete and undo, selecting, spell check, click and drag</p> <p>Routinely demonstrate skill in using clip art, digital photographs, symbols, text wrap, cropping, sizing, and other drawing tools</p>	<p>Microsoft Word</p> <p>Word Processing Help in menu bar icons</p>
2. Use a variety of technology tools for data collection and analysis	PO 1 Use technology devices to collect and record data	<p>Explain and demonstrate at least one example for the following devices in recording data: collection science probe, graphing calculator, PDA (personal digital assistant), alternative keyboards, Webcams, GPS and Internet</p>	<p>See documentation of instrument o</p> <p>Web site help on Internet</p> <p>On-line weather cams at <a href="http://www.wetterklima.de/cams/camera_ngl.html">www.wetterklima.de/cams/camera_ngl.html</a></p>

<p><i>Technology as a Productivity Tool – Grades 7-8 Continued</i></p> <p>3. Publish and present information using technology tools</p> <p>4. Use technology tools to support system analysis and modeling</p>	<p>PO 2 Create and use a spreadsheet to analyze data</p> <p>PO 3 (OPTIONAL) Create a database with multiple fields to manipulate data in a variety of ways</p> <p>PO 1 Design and create a multimedia presentation or Web page using multiple digital sources</p> <p>PO 2 Publish or present the above production</p> <p>PO 1 Manipulate several variables in a computer simulation to reach a desired outcome</p>	<p>Spreadsheet Checklist (Appendix)</p> <p>Routinely use spreadsheets to analyze data (e.g., formulas, charts, graphs)</p> <p>(OPTIONAL) Demonstrate use of a database with multiple fields to manipulate data (e.g., sort, merge, list, report)</p> <p>Create a multimedia presentation or Web Page using at least one digital source (e.g., camera, video, scanner, CD-ROM, Internet)</p> <p>Publish a Web page or deliver multimedia presentation</p> <p>Presentation/Graphics Rubric (Appendix)</p> <p>With the use of simulation software, Web-based simulation, textbook support software, etc., analyze and show proficiency in reaching a desired outcome through system analysis and modeling</p>	<p>Microsoft Excel</p> <p>(OPTIONAL) (if software is available Microsoft Access or File Maker Pro</p> <p>Adobe Photoshop</p> <p><u>How to Do Everything With Digital Photography</u> by David Hus</p> <p>Microsoft PowerPoint</p> <p><a href="http://www.w3schools.com/">http://www.w3schools.com/</a></p> <p>Web-based publishing software such as Adobe GoLive, Macromedia Dreamweaver or Microsoft FrontPage</p> <p>2D and 3D Software</p> <p>Sim City Series</p>
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**Technology as a Communication Tool – Grades 7-8**

Corresponding AZ Standard: 4T-E1, 4T-E2, 4T-E3

COMPETENCY GOAL: Building on productivity tools, students will collaborate, publish and interact with peers, experts, and other audiences using telecommunications and media.

## VALUES AND BENEFITS:

- Collaborative problem solving
- Project-based learning

VOCABULARY: multimedia authoring, presentation software, digital camera, camera, scanner, projection devices, OCR

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Use telecommunications efficiently and effectively to assess remote information and communicate with others in support of facilitated and independent learning</p> <p>2. Use technology for individual and collaborative writing, communication and publishing activities to create curricular related products for audiences inside and outside the classroom</p> <p>3. Collaboratively use telecommunications and online resources</p>	<p>PO 1 Communicate independently via e-mail, Internet, and/or videoconference with people in a remote location</p> <p>PO 1 Plan, design and present an academic product using technology tools</p> <p>PO 1 Request collaborative exchanges among people in local and/or remote locations            PO 2 Communicate electronically to collaborate with experts, peers and others to analyze data and/or develop an academic product            PO 3 Present an academic product to share data and/or solutions</p>	<p>Communicate with teachers and peers through Intra/Internet</p> <p>Participate in videoconferencing</p> <p>Presentation/Graphics Checklist (Appendix)</p>	<p><a href="http://www.think.com/en_us/">http://www.think.com/en_us/</a> (free Intranet for schools by Oracle)</p> <p>Free on-line video conferences:</p> <p>Healthy States CSG's partnership to promote public health  <a href="http://www.healthystates.csg.org">www.healthystates.csg.org</a></p> <p><a href="http://fcit.usf.edu/telecom/chap1.htm">http://fcit.usf.edu/telecom/chap1.htm</a></p> <p><a href="http://www.epals.com">www.epals.com</a></p> <p><a href="http://www.askanexpert.com">www.askanexpert.com</a></p> <p>Microsoft PowerPoint            Adobe Photoshop            Adobe Illustrator</p>

**Technology as a Research Tool – Grades 7-8**

Corresponding AZ Standard: 5T-E1, 5T-E2

COMPETENCY GOAL: Students use technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

VALUES AND BENEFITS:

- Improved organization and planning (WebQuests, etc.)
- Increased quality and quantity of resources

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Locate information from electronic resources	PO 1 Identify electronic research resources PO 2 Define subject searching and devise a search strategy to locate information using available electronic research resources PO 3 Explain the difference between subject and keyword searching PO 4 Construct keyword searches including basic Boolean logic using available electronic research resources PO 5 Identify the author, copyright date and publisher of information located in electronic Internet resources	Identify electronic research sources  Demonstrate proficiency in subject searching on multiple child-appropriate search engines	Tucson Public Library On-line <a href="http://www.lib.ci.tucson.az.us">www.lib.ci.tucson.az.us</a>  On-line encyclopedias: <a href="http://www.worldbook.com">www.worldbook.com</a> <a href="http://www.encyclopedia.com">www.encyclopedia.com</a> <a href="http://www.refdesk.com">www.refdesk.com</a>  <a href="http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/SearchEngines.htm">www.lib.berkeley.edu/TeachingLib/Guides/Internet/SearchEngines.htm</a>  <a href="http://owl.english.purdue.edu/handouts/research/mla.html">http://owl.english.purdue.edu/handouts/research/mla.html</a>  <a href="http://literacy.kent.edu/Oasis/Workshops/copytoc.html">http://literacy.kent.edu/Oasis/Workshops/copytoc.html</a>  <a href="http://lcweb.loc.gov/copyright/circ/circ1.html">http://lcweb.loc.gov/copyright/circ/circ1.html</a>
2. Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources	PO 1 Create citations for electronic research sources following a prescribed format PO 2 Gather research from a variety of electronic sources and identify the most appropriate information for answering the research question PO 3 Obtain permission, when appropriate, to use the work of others PO 4 Identify the components of a URL to determine the source of information PO 5 Identify the author of the information found from electronic resources and determine whether the author is an authority, displays bias and is a primary or secondary source		

**Technology as Problem Solving/Decision Making Tool – Grades 7-8**

Corresponding AZ Standard: 6T-E1

COMPETENCY GOAL: Students use technology to make and support decisions in the process of solving real-world problems.

VALUES AND BENEFITS:

- Interactive value of technology
- Increased availability of resources (universities, expert systems, etc.)

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Determine when technology is useful and select and use the appropriate tools and technology resources to solve problems</p>	<p>PO 1 Based on a problem selected by the student, identify and use appropriate technology tools to</p> <ul style="list-style-type: none"> <li>a) collect data</li> <li>b) interpret data</li> <li>c) develop a solution to the problem</li> <li>d) present findings</li> </ul>		<p>Create a spreadsheet, generating charts and graphs</p> <p>Present findings using appropriate medium (poster, banner, slideshow, video, word processing document, etc.)</p> <p>Microsoft Word Microsoft Excel Microsoft PowerPoint</p>

**Fundamentals of Technology – High School**

Corresponding AZ Standard: 1T-P1, 1T-P2, 1T-D1, 1T-D2

**VALUES AND BENEFITS:**

- Self-directed, continuous learning
- Enhanced personal growth

**VOCABULARY:**

Adaptive Devices, Assistive Technology, Erase Disk, Alternative keyboard, Probe

\*Due to the interdisciplinary structure of the High School setting, assessments will vary per class and discipline. Examples of assessment may include Projects, Formal and Informal Evaluation, or Observation

*Students will be able to:*

OBJECTIVES	STRATEGIES	ACTIVITY EXAMPLE*	RECOMMENDED RESOURCES
<p>1. Use the appropriate technology device to complete a task</p>	<p>PO 1 Given a task, select the appropriate device(s) (e.g., reporting a news story using digital and video camera and online editing to publish on the Web; gathering data using scientific probes and graphing calculators)</p>	<p>Demonstrate the ability to navigate a network system, utilize network drives and network print options</p>	<p>Software: Word-processing Database Web-authoring</p>
<p>2. Make informed choices among technology systems, resources and services</p>	<p>PO 1 Create criteria to compare and contrast technology systems, resources and services (e.g., which Internet service provider, music system, Web browser, or graphics package meets criteria)</p>	<p>Demonstrate an ability to use the basic functions of computer operating systems, such as, pull-down menu basics and file management</p> <p>Demonstrate knowledge of basic technology related vocabulary</p> <p>Identify a variety of technologies to access, analyze, interpret, synthesize, apply and communicate information</p>	<p>Hardware: Digital camera Video camera Graphing calculators</p>
<p><b>Distinction:</b></p> <p>D1. Manage a complex technology system such as a local area network, video distribution of a school, or lighting for a production</p> <p>D2. Setup and manage a homework hotline, tutoring site, discussion group, threaded discussion and/or e-mail system for students and parents</p>		<p>Save files in several different formats and create backup files; students will also be able to open files from several different sources</p>	

**Social and Ethical Implications of Technology – High School**

Corresponding AZ Standard: 2T-P1, 2T-P2, 2T-P3, 2T-D1, 2T-D2

COMPETENCY GOAL: Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

VALUES AND BENEFITS:

- Cultivation of ethical and responsible behavior
- Respect for the work of others

VOCABULARY:

Encryption Software

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services</p> <p>2. Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole</p>	<p>PO 1 Make informed choices among technology systems, resources and services in a variety of contexts</p> <p>PO 2 Explain the impact computer networking has on an organization (e.g., cost, allocation or resources, security, productivity, communications, and organizational or societal change</p> <p>PO 3 Predict future technological advances and the impact of them for individuals and the workplace (e.g., given the current "instant access," what's next?)</p> <p>PO 1 Explain the cost of maintaining technology in terms of money and manpower</p> <p>PO 2 Describe the effect on an organization when technology fails (e.g., power outage)</p> <p>PO 3 Analyze the long-term impact of technologies and their obsolescence (e.g., on the preservation of, and access to, older technologies; retraining of workforce)</p>	<p>Investigate community laws and policies that influence the topic. How is legal and illegal behaviors defined with respect to the topic?</p> <p>Evaluate the role government plays in regulating activities related to the topic. Write letters to government officials and attend government meetings to get information.</p> <p>Sample information from the internet that explains what makes a good Web site. Sample information that explains what makes the quality of data on a Web site good.</p> <p>Discuss what it feels like when someone taps into someone else's personal database and copies data from it. What rules or guidelines should be established?</p>	<p>Software: Word-processing</p> <p>Web Sites:</p> <ul style="list-style-type: none"> <li>• Search for Web site evaluation criteria</li> <li>• Search for information on plagiarism (see major college Web sites)</li> <li>• Search for intellectual property rights (contact a local law firm specializing in IPR)</li> </ul>

<p><i>Social, Ethical and Human Issues – High School Continued</i></p> <p>3. Demonstrate legal and ethical behaviors among peers, family, and community regarding the use of technology and information</p> <p><b>Distinction:</b></p> <p>D1. Analyze current changes in technologies and predict the effect those changes have on the workplace and society</p> <p>D2. Advocate for legal and ethical behaviors among peers, family and community regarding the use of technology and information</p>	<p>PO 1 State personal liability issues related to security systems to protect technologies (e.g., use of passwords and the importance of protecting them; use of encryption software)</p> <p>PO 2 Discuss individual privacy issues versus First Amendment protection (e.g., federal and state filtering and access legislation)</p> <p>PO 3 Explain the impact of unauthorized intrusions (i.e., hacking, spamming, manipulating or deleting data) on society</p> <p>PO 4 Describe computer viruses and ways to protect computers from them</p>	<p>Thoughtful lesson on use and abuse of information on the Internet. Involves language arts skill development. Good introduction to copyright issues also.</p>	
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## ***Technology as a Productivity Tool – High School***

Corresponding AZ Standard: 3T-P1, 3T-P2, 3T-P3, 3T-P4, 3T-D1

**COMPETENCY GOAL:** Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other creative works.

### **VALUES AND BENEFITS:**

- Improved academic performance
- Adaptable to student learning needs

### **VOCABULARY:**

Database, Graphic Calculator, Text Support Software

### *Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
<p>1. Communicate to a variety of audiences using professional level technology tools</p> <p>2. Use a variety of technology tools for data collection and analysis to support a decision</p>	<p>PO 1 Create documents using professional format (e.g., resume, letter of application, electronic portfolio, research paper)</p> <p>PO 2 Merge information from one document to another (e.g., mail merge, publish and subscribe)</p> <p>PO 3 Create a document that utilizes hyperlinks (e.g., Web link in documents, linking a word to a glossary, creating an interactive index)</p> <p>PO 1 Select appropriate technology devices to collect and record data (e.g., science probe, graphing calculator, PDA, alternative keyboard, Webcam, GPS and Internet)</p> <p>PO 2 Create and use a spreadsheet to analyze variables (e.g., 12-month budget, loan rates, science and math experiments, and investment portfolios)</p> <p>PO 3 Analyze data and create a database report from information manipulated in a variety of ways to support decisions (e.g., census data, polls and surveys, annual report)</p>	<p>Students are walked step-by-step through the development of a simple business card in Microsoft Publisher. Another application can be used for this introduction to desktop publishing</p>	<p>Software: Presentation Multimedia-authoring Web page creation Database</p> <p>Hardware: Video camcorder Audiotape player Computer</p>

*Technology as a Productivity Tool – High School Continued*

3. Use technology tools to publish and present information with interactive features

PO 1 Design and create a multimedia presentation or Web site with interactive features (e.g., animation, sound, action buttons to play, video, control devices, open other application, link to a Web site)

4. Use technology tools to support modeling and systems analysis

PO 1 Manipulate several variables in a computer simulation to reach a desired outcome (e.g., simulation software, Web-based simulation, textbook support software)

**Distinction:**

D1. Demonstrate technical standards, practices and techniques in videography by creating a product

**Technology as a Communication Tool – High School**

Corresponding AZ Standard: 4T-P1, 4T-P2, 4T- P3, 4T-D1, 4T-D2

COMPETENCY GOAL: Building on productivity tools, students will collaborate, publish and interact with peers, experts, and other audiences using telecommunications and media.

## VALUES AND BENEFITS:

- Collaborative problem solving
- Project-based learning

VOCABULARY: Videoconferencing

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Routinely and efficiently use online information resources to meet needs for collaboration and communications	PO 1 Using criteria for research in Standard 5, create an end product (e.g., multimedia presentation, publication, Web page) to disseminate the information	Consider several methods and choose the best for building group collaboration in research, communication, and presentation among students in physically separated schools. Articulate the reasoning used to arrive at a conclusion	Software: Word-processing Database Multimedia Encyclopedias Graphics Timeline Multimedia-authorizing
2. Manage and communicate personal and professional information utilizing technology tools and resources	PO 1 Plan and present a product appropriate to the task	Use a Web-based multimedia presentation to present future inventions to peers in other schools. Conduct e-mail interviews to hypothesize about the impact future inventions will have on the world	Hardware: Scanner Digital camera
3. Using technology, collaborate with peers, experts, and others to contribute to a content-related knowledge base	PO 1 Contribute digitized material (e.g., video interviews, scanned pictures, text, and graphic information) to project archive and create links to resource materials	Research and report on at least three "scientific breakthroughs" that enabled communications technology to have a widespread impact. A description of the supporting technology can include the inventor, the date of the invention, and a description or rationale of why it was a "breakthrough" technology	

*Technology as a  
Communication Tool – High  
School Continued*

**Distinction:**

D1. Use technology to compile, synthesize, produce and disseminate information, models, and other creative works

D2. Participate in a student think-tank simulation to solve a technology-based problem

PO 2 Conduct e-mail interviews with content experts

PO 3 Consider several methods and choose the best for building group collaboration in research, communication and presentation among students in physically separated schools

Use word-processing software to create a telephone conversation between A.G. Bell and his deaf wife. Research the use of English, colloquialisms, and other language elements of the time period

## **Technology as a Research Tool – High School**

Corresponding AZ Standard: 5T-P1, 5T-P2, 5T-P3, 5T-D1, 5T-D2

**COMPETENCY GOAL:** Students use technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

### VALUES AND BENEFITS:

- Improved organization and planning (WebQuests, etc.)
- Increased quality and quantity of resources

### *Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Develop a research strategy to find accurate, relevant, appropriate electronic information sources	<p>PO 1 Explain the difference between Internet searching using directories and search engines</p> <p>PO 2 Construct online or electronic database searches using Boolean logic (AND, OR, NOT)</p> <p>PO 3 Independently select appropriate electronic resources from school, community and the world (via online) to be used to locate information needed when presented with a problem to solve</p> <p>PO 4 Evaluate the appropriateness and effectiveness of electronic resources (e.g., purpose, credibility of author)</p>	Lesson involves students in a discussion of advertising that targets a specific group—teens. Upon review of other targeted advertising layouts, students design their own targeted ad	<p>Software:</p> <p>Word-processing Database CAD or graphics Presentation Multimedia-authoring Web page creation Database</p> <p>Hardware:</p> <p>Video camcorder Audiotape player Computer</p> <p>Web sites:</p> <p>Software databases Educational software Preview Guide</p>
2. Investigate and apply expert systems (e.g., search engines and intelligent agents)	<p>PO 1 Given a concept, use online search engines as well as resource-specific search features (e.g., CD-ROMs) to find relevant information</p> <p>PO 2 Adapt software for personal efficiency by setting preferences for effective use of the software</p> <p>PO 3 Use advanced features (e.g., preferences, advanced searching, filtering) in Internet browser and information software</p>		

<p><i>Technology as a Research Tool – High School Continued</i></p> <p>3. Present research findings from electronic resources using academic models for citations and format</p> <p><b>Distinction:</b></p> <p>D1. Design a research project using a variety of technologies to solve a real-world problem</p> <p>D2. Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources</p>	<p>PO 1 Utilize evaluation criteria (authority, accuracy, relevancy, timeliness) for information found on the Internet to present research findings</p> <p>PO 2 Create citations for resources used following an academic model to present research findings</p> <p>PO 1 Compare and contrast bias in electronic information resources</p> <p>PO 2 Create a presentation on bias found in electronic information resources to present to a younger audience</p>		
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**Technology as Problem Solving/Decision Making Tool – High School**

Corresponding AZ Standard: 6T-P1, 6T-P2, 6T-D1

COMPETENCY GOAL: Students use technology to make and support decisions in the process of solving real-world problems.

VALUES AND BENEFITS:

- Interactive value of technology
- Increased available resources (universities, expert systems, etc.)

VOCABULARY: Intelligent Agents

*Students will be able to:*

OBJECTIVES	STRATEGIES	ASSESSMENT/ACTIVITY	RECOMMENDED RESOURCES
1. Investigate technology-based options, including distance and distributed education for lifelong learning	<p>PO 1 Locate and use an online tutorial and discuss the benefits and disadvantages of this method of learning</p> <p>PO 2 Research a career and predict the advanced training needed to maintain success in the career</p> <p>PO 3 Design and implement a personal learning plan that utilizes technology (e.g., identify a topic such as an academic interest, personal hobby, health issue, or potential job sources, and utilize research skills from Standard 5 to support lifelong learning</p>	<ul style="list-style-type: none"> <li>• Making a PowerPoint presentation</li> <li>• Designing a Web page</li> <li>• Using a video camcorder to document places where the idea takes place</li> <li>• Conducting research on the aspects of the project that can be implemented with current technology</li> <li>• Collecting oral histories from people involved</li> <li>• Review related software</li> <li>• Create a bibliography with explanations of why the books are the best ones</li> <li>• Survey art that depicts the topic or has the topic as a theme</li> <li>• Create a unique presentation. For example, if the topic is pop vocal music, a presentation can be created using music to convey the information</li> </ul>	<p>Software:</p> <ul style="list-style-type: none"> <li>• Presentation</li> <li>• Multimedia-authoring</li> <li>• Web page creation</li> <li>• Database</li> </ul> <p>Hardware:</p> <ul style="list-style-type: none"> <li>• Video camcorder</li> <li>• Audiotape player</li> <li>• Computer</li> </ul> <p>Software:</p> <ul style="list-style-type: none"> <li>• Word-processing</li> <li>• Database</li> <li>• CAD or graphics</li> </ul> <p>Web sites:</p> <ul style="list-style-type: none"> <li>• Software databases</li> <li>• Educational software</li> <li>• Preview Guide</li> </ul>

<p><i>Technology as a Tool for Problem Solving and Decision-Making – High School Continued</i></p> <p>2. Routinely and ethically use productivity tools, communication tools and research skills to solve a problem</p> <p><b>Distinction:</b></p> <p>D1. Collaborate with peers, experts, and others to compile, synthesize, produce and disseminate information and models for the purpose of suggesting solutions to a complex problem</p>	<p>PO 1 As a capstone experience in a content area, solve a problem using appropriate technology tools to:</p> <ol style="list-style-type: none"> <li>1. identify the problem and formulate the strategy to solve the problem (e.g., brainstorming tools, flowcharting, online resources)</li> <li>2. collect data (e.g., using GPS, PDA, Internet, probe ware, recordings)</li> <li>3. interpret data (e.g., visualization, simulation, or modeling software)</li> <li>4. develop a solution to the problem</li> <li>5. present findings (e.g., electronic presentation, Web page, professionally formatted document, computer model, audio or video presentation, Web streaming)</li> </ol>	<p>Research a variety of career areas choosing one to demonstrate to the class using PowerPoint</p>	
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*For Vocabulary Definitions, refer to Arizona Technology Education Standard Glossary:*  
<http://www.ade.state.az.us/standards/technology/glossary.pdf>