



Arizona Department of Education  
John Huppenthal, Superintendent of Public Instruction

# Arizona Adult Education

## College & Career Ready Standards

### Technology

Revised 2011  
[www.azed.gov/adult-ed](http://www.azed.gov/adult-ed)

## Technology Introduction

The Arizona Adult Education Technology Standards were first developed by a team of Arizona adult educators in 2004 and adopted in 2005 for the purpose of identifying what adult learners needed to know and be able to do in terms of technology to function effectively as parents, employees, and community members. Much has changed in the world of technology since 2004! In 2011, guided by international technology standards, a team of Arizona adult educators came together to share their ideas, expertise and creativity to develop a new edition of our Adult Education Technology Standards. Arizona's adult educators will find the 2011 edition of the Arizona Adult Education Technology Standards to be streamlined, easier to use, and updated to identify what adults must know and be able to do today to live, learn and succeed in a technology-powered world.

The newly revised Arizona Adult Education Technology Standards document consists of one **Standard** and five **Strands** that address the following concepts: 1) Ethics, Equity and Responsibility; 2) Fundamental Operations and Concepts; 3) Communication and Collaboration; 4) Research Principles and Practices; and 5) Productivity, Creativity and Innovation. Each **Strand** contains two to three **Indicators** and within each **Indicator** are several **Sub-Indicators** and **Technology Activities**. The **Technology Activities** are actually lesson ideas designed to help a teacher bring the standards to life in the classroom.

The format of the document is designed with hyperlinks so that teachers using the electronic version can click and go directly to applicable **Technology Activities** from each **Indicator**, and then back again. It is intended that the **Technology Activities** section will continue to grow and enrich as educators implement the Standards in adult education classrooms throughout Arizona and develop new lessons ideas and/or refine existing ones.

## **Arizona Adult Education Technology Standard**

***The adult learner develops and applies technology skills and related concepts for the advancement of educational, workplace, and personal goals.***

**STRAND: Ethics, Equity and Responsibility: Learners understand the social and ethical issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information, and software.**

### **INDICATOR A:**

Advocate and practice safe, legal, and responsible use of information and technology.

### **SUB-INDICATORS:**

- Recognize that potentially harmful objects and materials (e.g. magnets, liquids, and pet hair) should be kept away from equipment.
- Use appropriate shut-down/log-off procedures and leave technology the way it was found.
- Understand and practice safe Internet usage (e.g. does not reveal personal information, does not post inappropriate or harmful material, practices password security).
- Distinguish between kinds of information that should and should not be shared via technology and describe the consequences of a poor decision.
- Understand the dangers of computer viruses and identify ways to protect computers or any other technology from them.
- Recognize the negative impact of unauthorized intrusions (e.g. phishing, hacking, spamming) into electronic communications and describe actions to prevent these intrusions.

### **TECHNOLOGY ACTIVITIES**

- [Classroom Ground Rules](#)
- [Ethical Use of Social Networks](#)

- [Phishing](#)
- [Viruses](#)

#### **INDICATOR B:**

Demonstrate respect for the intellectual property of others.

#### **SUB-INDICATORS:**

- Understand the consequences of plagiarism (e.g. expulsion, loss of job, legal action) and how to avoid plagiarism by paraphrasing, quoting, and properly citing sources.
- Understand when it is necessary to obtain permission to use the work of others and act appropriately.
- Download and install only authorized files or programs (e.g. software, music, movies, and images).

#### **TECHNOLOGY ACTIVITIES**

- [Legal and Ethical Standards](#)
- [Proper Citations](#)
- [Piracy](#)

**STRAND: Fundamental Operations and Concepts: Learners demonstrate a sound understanding of technology concepts, systems and operations.**

#### **INDICATOR A:**

Demonstrate a sound understanding of the operations of technology systems and are proficient in their use.

## SUB-INDICATORS:

- Communication about basic technology components using appropriate and correct vocabulary related to external and internal computer or other technology operations.
- Demonstrate proper procedures for turning computers on and off and logging into and out of a computer or other device.
- Use input devices effectively (e.g. keyboard, touch screens, mouse).
- Name, save, and back up files to hard drive, hard disk, or other memory device.
- Retrieve and open files and recognize file extensions.
- Create and manage folders.
- Print documents (e.g. using printer icon, file menu, print preview) and know how to change default printer functions.

## TECHNOLOGY ACTIVITIES

- [Technology Vocabulary](#)
- [Basic Technology Components and Devices](#)
- [Basic Computer Procedures](#)
- [Internet Access](#)
- [Learners Teaching Others](#)

## INDICATOR B:

Select and use applications effectively and productively.

## SUB-INDICATORS:

- Recognize toolbar icons of opened programs and their functions.
- Use directional keys, backspace, and space bar.
- Open, close, minimize, and maximize various applications.

- Move through document using various scrolling methods
- Use pull-down menus.
- Apply highlighting, drag-and-drop, and copy/cut and paste.
- Understand function keys as one of the optional approaches to tasks.
  
- Select technology appropriate to the task and discuss the advantages and disadvantages of various technology choices.

## TECHNOLOGY ACTIVITIES

- [Learning the Lingo](#)
- [Choosing and Using Correct Software](#)
- [Self-Teaching Plan](#)

## INDICATOR C:

Identify and apply troubleshooting strategies for solving routine hardware and software challenges that occur in everyday use.

## SUB-INDICATORS:

- Access help icon, online help, tutorials and/or manuals.
- Recognize and follow instructions in dialog boxes.
- Unfreeze and/or restart the computer.
- Recognize the presence and symptoms of a virus and seek assistance for a cure.
- Install, delete, update, and reinstall software.

## TECHNOLOGY ACTIVITIES

- [Troubleshooting](#)
- [Managing Software](#)
- [Virus! Now What?](#)

**STRAND: Communication and Collaboration: Learners use technology to communicate and work collaboratively.**

### INDICATOR A:

Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

### SUB-INDICATORS:

- Understand various formatting choices and select a design layout and format a document (e.g., font, page set up, line spacing, indents).
- Create and use tables, spreadsheets and graphs for effective communication.
- Utilize software tools to edit/revise documents, including dictionary/ thesaurus, track changes, comments and spell and grammar check.
- Integrate applications for efficient communications (e.g., merge addresses, insert spreadsheets).
- Create products incorporating multimedia to communicate ideas (e.g., sound, animation, digital photography, video capture).

## TECHNOLOGY ACTIVITIES

- [Online Forms](#)
- [Professional Documents](#)
- [Tables and Spreadsheets](#)
- [Writing Practice and Mail Merge](#)

- [\*Incorporating Multimedia\*](#)

#### **INDICATOR B:**

Interact, collaborate, and publish with peers or others, employing a variety of digital environments and media.

#### **SUB-INDICATORS:**

- Access and communicate via email, text messaging, instant messaging, bulletin/message boards, online discussion groups, and audio/video conferencing.
- Share files efficiently and effectively (e.g., collaboration platforms, flash drive).
- Negotiate team roles and resources, draw upon the expertise and strengths of team members and remote experts and use technology to support the work of the team.
- Use technology to monitor progress toward goals and refine team processes for achieving goals.
- Provide constructive feedback to and utilize feedback from a virtual collaborator on a product or presentation.
- Use technology to create and maintain virtual teams.
- Use a range of social media (e.g., blogs, wikis, social networks).

#### **TECHNOLOGY ACTIVITIES**

- [\*International E-Pals\*](#)
- [\*E-mail Account Management\*](#)
- [\*Effective Electronic Communication\*](#)
- [\*Collaborative Sites\*](#)
- [\*Video Production\*](#)
- [\*Create a Classroom Wiki\*](#)
- [\*Create a Virtual Classroom\*](#)



**STRAND: Research Principles and Practices: Learners develop and implement effective research strategies to make informed decisions and solve real world problems.**

**INDICATOR A:**

Use technology to locate and gather relevant information.

**SUB-INDICATORS:**

- Identify and define authentic problems and significant questions for investigation.
- Plan and manage activities to develop a solution or complete a project.
- Find and review relevant resources using search tools and advanced search techniques.
- Save location of information by using bookmarks/favorites.

**TECHNOLOGY ACTIVITIES**

- [Conducting Effective Searches](#)
- [Working with Original Sources](#)
- [Digital Research Tools](#)

**INDICATOR B:**

Interpret and evaluate the reliability, accuracy and comprehensiveness of information sources.

**SUB-INDICATORS:**

- Identify the source of online information to assess reliability.
- Analyze sources for bias, timeliness and credibility.
- Verify accuracy of information by researching multiple sources.

## TECHNOLOGY ACTIVITIES

- [Compare Online Sources](#)
- [Domain Extensions](#)
- [Evaluating Online Information and Sources](#)

## INDICATOR C:

Use technology to process information and share results.

## SUB-INDICATORS:

- List and organize collected information (e.g., bookmarks/ favorites, tables, charts, graphs).
- Synthesize information from a variety of sources and media.
- Discuss and present research results.
- Cite research sources following a prescribed format.

## TECHNOLOGY ACTIVITIES

- [Organizing Information](#)
- [Share, Discuss and Present Research](#)
- [Using Citations in Research](#)

**STRAND: Productivity, Creativity and Innovation: Learners use technology to construct knowledge and demonstrate creativity and innovation.**

**INDICATOR A:**

Use technology to empower personal productivity and facilitate learning throughout the curriculum.

**SUB-INDICATORS:**

- Use available technology to manage personal information (e.g., calendars, schedules, contact information).
- Explore technology-based educational opportunities, including distance education.
- Use specific technology to address personal learning needs/styles.
- Use technology to build, review and regularly update dynamic learning plan based upon personal educational goals.

**TECHNOLOGY ACTIVITIES**

- [Maximizing Use of Hand-held Devices](#)
- [Ways to Increase Productivity](#)
- [Exploring Distance Education](#)

**INDICATOR B:**

Apply existing knowledge to generate new ideas, products, or processes.

**SUB-INDICATORS:**

- Recognize the capabilities and limitations of various technologies and choose the most appropriate for the design of a product or presentation.
- Use a variety of digital tools to accomplish a task or develop a solution for a practical problem.

- Use technology to create original works as a means of personal or group expression.

## TECHNOLOGY ACTIVITIES

- [Blogging](#)
- [Creating a Simple Webpage](#)
- [Reviewing a Webpage](#)
- [Photo Essay](#)

## INDICATOR C:

Stay abreast of innovations in technology and make informed decisions about using them.

## SUB-INDICATORS:

- Adapt to and learn to use new and innovative media forms.
- Analyze the influence and effects of innovations in technology on communication, information and knowledge itself.
- Identify technological trends and forecast possibilities.
- Analyze the effects of increasing reliance on technology in the workplace and in society as a whole.

## TECHNOLOGY ACTIVITIES

- [What's Obsolete? What's Next?](#)
- [Job Market Research](#)
- [Technology Journal](#)

## TECHNOLOGY ACTIVITIES

### Strand: Ethics, Equity and Responsibility

#### **Indicator A Activities:**

#### **Classroom Ground Rules**

Learners work in groups to create a list of agreed upon rules for the proper and safe use of classroom technology (rules may include references to a program's code of conduct):

- Learners discuss as a class what areas of technology in the classroom need rules (e.g., computer use, cell phone use, projector use);
- Learners use the whiteboard to brainstorm a list of rules in each area;

#### **Ethical Use of Social Networks**

Learners gather and share information about the safe and ethical use of social networks (e.g., privacy settings, cyber bullying, posting etiquette):

- In small groups, learners define the term, "social network";
- Learner groups brainstorm the positives and negatives associated with social networks;

#### **Phishing**

Learners gather and share information about "phishing" and create a set of recommendations on how to avoid becoming a victim:

- In small groups, learners define the word phishing (using Internet resources);
- Learner groups look at instructor-provided examples of phishing and try to identify two or more things that demonstrate phishing in each example;

#### **Viruses**

Learners understand about the dangers of viruses and learn strategies to avoid becoming a victim:

- Teacher leads a whole group discussion about what viruses are and the damage they do; teacher brings in article(s) of famous virus attacks (e.g., Trojan Horse, Koobface, Witty Worm);

- Each rule (such as, "Don't turn off the computer without closing open programs") is explained and students are asked to discuss in groups of two or three the necessity of each rule;
- As a class, learners prioritize which rules to keep and discuss their importance;
- A final version of the list of rules is displayed in the classroom.

- Learner groups make a PowerPoint presentation about the do's and don'ts of using social networks;
- Learner groups share their PowerPoint presentations with the class and discuss strategies to avoid negative incidents.

- Learner groups use publishing software to create flyers that warn others about phishing;
- The groups present their flyers to the whole class and explain how they can be used.

- In small groups, learners define terms such as "virus", "worm", "hacker" and identify ways to avoid becoming a victim;
- Learner groups research virus protection software and create a chart comparing protective features (e.g., price, ease of use, compatibility, etc.);
- Each learner group presents their results to the entire class.

## **Indicator B Activities:**

### **Legal and Ethical Standards**

Learners research and understand current legal and ethical standards regarding the use of information found on the Internet:

- Teacher leads a whole group discussion about the meaning of terms such as plagiarism, copyright, trademark, and intellectual property;
- Individual learners search online for information about legal and ethical standards for downloading and using Internet material;
- In small groups, learners compare their results and discuss the consequences of illegal use of information;

### **Proper Citations**

Learners understand the importance of properly citing references obtained from various sources (*also see Sample Activity, [Using Citations in Research](#)*):

- Learners examine research examples with both proper and improper reference citations;
- Individual learners or small groups explore websites that show how to cite sources (e.g., [http://www.grammar-quizzes.com/writing\\_citations.html](http://www.grammar-quizzes.com/writing_citations.html));

### **Piracy**

Learners explore and understand the meaning of “piracy” as it relates to copyright infringement:

- Learners read and compare the piracy warnings from at least three DVDs;
- In small groups, learners make a list of difficult and/or important words in the warnings;

- Learner groups make a list of recommendations for how to avoid illegal and/or unethical use of information;
- Each learner group presents their recommendations to the entire class;
- As a whole group, learners synthesize all of the ideas into one document titled *Legal and Ethical Standards for Using Information from the Internet* and then display it in the classroom.

- Learners discuss the various Style Manuals (e.g., AP, APA, CMOS, MLA) and as a class decide on which one to use;
- Learners practice using the Style Manual examples to write proper citations for various types of references (websites, articles, book chapters, etc.);
- Learners read each others’ citations and check for correctness.

- Using an online dictionary or encyclopedia, learner groups look up the meanings of the difficult and/or important words;
- Each learner group creates their own version of a piracy warning using simpler words;
- Learners share their piracy warnings on a blog set up by their instructor.

## **Strand: Fundamental Operations and Concepts**

### **Indicator A Activities:**

#### **Technology Vocabulary**

Learners access resource to help them when unknown technology terms are encountered:

- Teacher presents a list technology terms and learners identify any that are already known;

- In small groups, learners access an online dictionary of technology terms (e.g., [www.techterms.com](http://www.techterms.com)) and find the meaning of unknown terms;
- Each learner shares at least one new term learned.

### Basic Technology Components and Devices

Learners use technology to learn and teach others about technology components and devices:

- In pairs or small groups, learners take apart and explore an old, non-working computer or other technological device;
- Learner groups use a digital or cell phone camera to take pictures of the interior and exterior parts;
- Learner groups import the pictures to a computer, edit them, and create a folder on the hard drive;

### Basic Computer Procedures

Learners develop a classroom set of detailed instructions on basic computer procedures:

- In pairs or small groups, learners write instructions for how to 1) turn on a computer, 2) log onto a computer, 3) log off a computer, and 4) turn off a computer (note: they may use a computer to type the instructions but not to figure them out);
- Learner groups try out the instructions on a computer to see if they work, modify as needed, then compare their instructions with the instructions written by other groups;

### Internet Access

Learners practice connecting to the Internet and/or Intranet:

- In small groups, learners discuss the advantages and disadvantages of a computer with and without Internet access, what is needed to connect a computer to the Internet, what a browser is, and the differences between wireless, dial-up, and high-speed connections;

### Learners Teaching Others

Learners teach someone else how to do something they have just learned.

- The teacher creates several small activities pertaining to using a computer proficiently (e.g., creating folders, backing up files, changing printer default functions, connecting and using external devices, etc.);

- Using the pictures and presentation software, learner groups create and save a simple digital presentation that explains the interior and exterior parts of the device (they may need to search the Internet to identify and describe some of the parts);
- Each learner group shares their presentation with the entire class.

- As a whole group, learners decide how to combine the instructions into one clear set of detailed instructions for the classroom (note: this can be done collaboratively using Google Docs);
- The final version of the instructions are saved, printed, distributed to all learners and posted in the classroom.

*Activity Variation-- Learners are divided into four groups with each group responsible for one set of instructions, 1) turn on a computer, 2) log onto a computer, 3) log off a computer, and 4) turn off a computer. The four sets are combined together creating one complete set of instructions for basic computer procedures.*

- Each learner then practices connecting to the Internet using various browsers (e.g., Internet Explorer, Google Chrome, Safari, Mozilla Firefox) and records any differences and similarities noted;
- Learners present their findings to the class.

*Activity Extension-- While on the Internet, learners explore the websites of various Internet providers (e.g., Cox, Verizon, AOL). Learners research the features and costs and create a spreadsheet to compare the providers.*

- Each learner selects one activity that is new to them and practices performing the activity;
- Each learner then teaches that activity to one or more learners.

## **Indicator B Activities:**

### **Learning the Lingo**

Learners explore the terminology and “lingo” associated with using technology:

- From a list of terms (toolbar, icons, functions, “special” keys, highlighting, drag-drop, copy-cut-paste, menu, minimize-maximize, etc.), learners pick out the ones they know and work with a partner to show each other what the terms mean;

### **Choosing and Using Correct Software**

Learners explore various software choices available and learn to choose appropriately for various tasks:

- Learners are given a variety of tasks to choose from (write a short letter, develop a simple budget, send an email, make a flyer, tell a story with pictures, modify an image, make a musical playlist) and asked to select a software to use for one of the tasks;
- Each learner completes his/her chosen task using the software selected;

### **Self-Teaching Plan**

Learners make a plan to improve their application skills to become more efficient and productive:

- In small groups, learners discuss their existing computer skills and how improving those skills might make their lives easier;
- Each learner selects a skill area to improve and shares it with others in the group;

- Learners take turns ‘manning’ stations as other learners walk to the stations to learn about the terms they don’t know;
- If there are terms that no one understands, learners use the Internet to research and discover the meanings.

- Learners take turns explaining why they chose the software tool used to complete their task and why other tools were not selected;
- Learners discuss the unique features of each software tool and what types of tasks are most appropriate for each one.

*Activity Variation-- If computers are not available in the classroom, learners can still discuss the unique features of each software tool and what types of tasks are most appropriate for each one.*

- Learners assist each other in making a plan of what they need and want to learn and in what sequence;
- Learners search for and share resources to help each other improve their skills (e.g., online tutorials, software “help”, etc.);
- Learners report regularly on their progress.



## **Indicator C Activities:**

### **Troubleshooting**

Learners develop their troubleshooting skills:

- In small groups, learners talk about problems they have encountered with computers or software and how they have fixed them;
- Learner groups discuss strategies to find solutions to computer problems (e.g., searching the Internet, using the “help” icon, using the Task Manager, reading the manual);

### **Managing Software**

Learners explore how to install, delete, update and reinstall software:

- Learners define the terms pertaining to software management (install, delete, update, and reinstall);

### **Virus! Now What?**

Learners understand how to recognize a virus and learn ways to minimize the damage:

- Teacher leads a discussion to identify the various symptoms of a computer virus;

- Learner groups create a spreadsheet cataloging the problems and solutions (note: this can be done collaboratively using Google Docs);
- Each time a new problem is encountered and a solution is found, learners add it to the spreadsheet.

- Learners discuss how software management at school or public labs differs from software management at home;
- If appropriate, learners practice installing, deleting, updating and reinstalling software on a computer in the classroom.

- Individual learners or pairs then search the Internet for strategies for removing a virus;
- Learners share the strategies and helpful websites with each other.

## **Strand: Communication and Collaboration**

### **Indicator A Activities:**

#### **Online Forms**

Learners independently access and complete online forms:

- The teacher leads a whole group activity where learners generate ideas of when they might need to complete a form online (e.g., applying for a job, registering for school, registering to vote, completing a survey, etc.);
- The teacher gives learners a list of websites that have online forms;
- Learners access the website(s) of their choice and complete the online form(s);

- Learners report back to the whole class about what they found and about experiences they had with the different websites.

*Activity Extension-- Learners are asked to do a search for employment sites and list five results. Learners compare their five results with the others in the class. Interested learners choose at least one site and complete the online job application.*

### Professional Documents

Learners create a job-related word processing document (e.g., resume, memo, cover letter) that includes various design layouts and formatting:

- As a class, learners make a list of what paperwork is needed to apply for a job and what the purpose is for each type of document;
- Teacher provides templates and/or examples, or learners search online to find templates and/or examples;

### Tables and Spreadsheets

Learners use a table or spreadsheet to track attendance data:

- As a class, learners discuss what attendance data to collect (e.g., number of hours in class, number of days absent, percentage of attendance, etc.);
- In small groups or pairs, learners create a spreadsheet or table to enter the data decided upon (if some groups choose to use a word processing table and other

### Writing Practice and Mail Merge

Learners use mail merge to create address labels:

- All learners in the class enter their home mailing address into a spreadsheet (this can be done collaboratively using a Google Doc);
- Learner pairs take turns merging the addresses into various documents (e.g., address labels, letters, etc.) to see how the merge feature can make communication processes more efficient;
- Learners print out address labels for the entire class and put each address on a blank postcard;

### Incorporating Multimedia

Learners use a multimedia presentation to present information about a specific topic:

- Individual learners or learner pairs choose a specific topic of interest in an academic content area (e.g., the water cycle- science, how a bill becomes a law- social studies, the order of operations- math, etc.);
- Learners use presentation software to create a presentation that teaches about the topic;

- In pairs or small groups, learners examine the layout and formatting features of each document example and discuss how effective layout and formatting can support (or distract from) the purpose of the document;
- Learners individually create one of the documents for themselves and experiment with various design layouts and formatting for effective communication.

*Activity Extension-- Interested learners can create all of the job-related documents so that they have the paperwork necessary to actually apply for a job.*

groups choose to use spreadsheet software, be sure to discuss the different features available in each);

- Each learner keeps track of his/her own attendance data for at least a month and enters it in the tool created;
- Learners compare their data with others in the class and with class requirements.

- Each learner writes a letter to another learner on one of the postcards to practice writing a short letter;
- The postcards can be mailed or handed out.

*Activity Variation-- Each learner writes a note to his/herself on the postcard stating his/her personal learning goal; the teacher mails the postcards in a few weeks to remind each learner of his/her reason for coming to class.*

- The presentation should incorporate color, images, animation, and/or audio (music, voice or sound effects) to help effectively communicate concepts and ideas about the topic;
- Learners present the presentation to the entire class.

## **Indicator B Activities:**

### **International E-Pals**

Learners enhance their cultural understanding and global awareness by forming an international online “E-pal” group:

- Learners search online for existing E-pal groups and compare in small groups how the groups are set up and what advantages and disadvantages each set-up might have;

### **E-mail Account Management**

Learners create and manage an e-mail account:

- Learners who already have an email account are put in pairs with learners who don't have an email account;
- Learner pairs investigate online how to get a free email account;
- As a whole class activity, learners put the different providers on the whiteboard and list advantages and disadvantages of each provider;
- The class discusses which providers have the best features;
- With help from their partners, the learners without an email account choose a provider and set up an account;
- Learner pairs practice composing/sending/receiving/deleting emails and attaching files to emails;

### **Effective Electronic Communication**

Learners use email to effectively communicate:

- As a group, learners discuss and weigh what is appropriate to say and not say and the level of formality required for different audiences;
- Learners generate a list of email etiquette rules on the whiteboard;

- In pairs or small groups, learners plan what features they would want a E-pal group to have;
  - Learners set up an international online E-pal group;
  - Learners invite other adult learners to join their group.
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- The instructor demonstrates the following:
    - Creating and managing an email address book (e.g., create new contacts, edit a contact, delete a contact, create and edit group lists);
    - Creating and managing email folders including the use of shared folders;
  - Learner pairs work together to set up their own address book and folders;
  - All learners practice emailing each other and adding class members to their address book.

*Activity Extension-- Learners create a class distribution list to send emails to the entire class.*

- Learners practice email etiquette by composing and sending three emails on the same subject- to a classmate, to the instructor, and to their Congressional Representative;
- Learners discuss ideas for using email to improve communication within the classroom and in other situations (e.g., submitting assignments, notifying about an absence, etc.).

### **Collaborative Sites**

Learners use online collaborative tools to share information and create a product:

- The teacher leads a class discussion about various collaborative tools (e.g., Google Docs, Doodle.com, wikis) and how they work;
- Learners are asked to use the tools to collaboratively perform a specific task, such as writing a story or fairy tale;
- Learners use Doodle.com (or something similar) to form groups to work on the stories;

### **Video Production**

Learners work in pairs to create a video on an appropriate topic and share it online (e.g., YouTube):

- Learner groups use Google Docs to write a story, with each learner adding and revising as necessary;
- Learner groups use a wiki or social network site to discuss the story's progress as it is developed;
- When the stories are finished, each group presents their final product to the entire class;
- The teacher leads a class discussion to share about how the collaborative process and tools worked out for each group.

### **Create a Classroom Wiki**

Learners create and use a classroom wiki:

- The teacher leads a whole group discussion about what a wiki is and what purpose a wiki could serve in the classroom;
- Learners explore existing wikis, such as Wikipedia, and discuss the features;
- Learners research how to start a wiki on the Internet;

- Learners are given a research task in science, social studies, or another academic subject and are asked to present the result in the form of a video;
- Learners publish the video online.

### **Create a Virtual Classroom**

Learners create and participate in a virtual classroom to support their educational goals:

- The teacher leads a whole group discussion about what a virtual classroom is, what tools are used to create one, and how it can be used for educational purposes;
- The class decides as a group which features are important and which tool to use for their own virtual classroom (e.g., Moodle, Blackboard, Google Site, etc.);

- A group of interested learners sets up a classroom wiki and presents to the whole class about how to use it;
  - Learners discuss strategies to encourage the use of the wiki by all class members;
  - Learners use and encourage others to use the wiki throughout the school year.
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- A group of interested learners researches how to set up a virtual classroom using the selected tool;
  - The learner group sets up the virtual classroom and demonstrates how to use it to the entire class.

## Strand: Research Principles and Practices

### Indicator A Activities:

#### Conducting Effective Searches

Learners develop skills to effectively use a search engine:

- As a group, learners share ideas and discuss why and how to use a search engine (such as Google) to find information;
- Learners discuss the concept of “keywords” and practice entering some into different search engines and compare the results;

#### Working with Original Sources

Learners conduct research using original sources:

- The teacher leads a discussion about the use of sources in research and the class analyzes the differences between original/primary sources and secondary sources, including how the concept of bias may fit in;
- Learners choose (or teacher assigns) a research topic in a specific content area (e.g., Japanese-American experiences during WWII, Abraham Lincoln’s family life, the Great Depression);

#### Digital Research Tools

Learners use digital tools to identify authentic problems and investigate possible solutions:

- Learners choose (or teacher assigns) a research topic that is relevant (e.g., research advantages and disadvantages of different products from a consumer’s point of view);
- Learners discuss various digital tools and how they are used-
  - Search engines (e.g., Google, Bing)
  - Keywords
  - Bookmarks

- Learners experiment with the use of Boolean logic in a search and compare the results (if learners do not know what Boolean logic is, they can do a search to find out);
- Learners practice searching skills by doing an online scavenger hunt.

- Learners use online websites to find original source documents related to the topic chosen or assigned (e.g., Library of Congress, Project Gutenberg, New Deal Network, Smithsonian Institution);
- If appropriate, learners use audio recorders/video production to create their own original interviews and oral histories;
- Learners present research findings to the class.

- Site indexes
- “Find” feature (Ctrl + F) to locate a specific word or phrase within a document or a webpage
- RSS feeds (Really Simple Syndication) and/or Google Alerts
- In small groups, learners use digital tools to find pertinent information on the chosen topic;
- Learner groups present information found to the entire class.

## **Indicator B Activities:**

### **Compare Online Sources**

Learners compare and contrast online sources of information:

- In pairs or small groups, learners examine information from various online sources on the same topic;
- Learners compare and contrast the author’s qualifications, publication date, language use (formal/informal), point of view represented, facts presented,

and identify any specific examples of opinion, distortion, exaggeration, bias or misrepresentation of information;

- Learners determine which sources are most and least credible and present their findings to the class.

*Activity Variation—If classroom computers or the Internet are not available, the activity can still be done using printed examples that the teacher brings in.*

### **Domain Extensions**

Learners discuss the significance and meaning of URL domain extensions:

- In groups, learners make a list of all of the domain extensions they can come up with and describe what each one means (e.g., .gov = government, .edu = education, .com = commercial, .org = organization, etc.);
- Learners brainstorm about possible differences and things to watch out for (“red flags”) in websites with each domain extension (e.g., bias, opinion, persuasion, distortion, agenda);

- Learners find examples of several websites with different domain extensions and describe and share any “red flags” found;
- Learners discuss why it’s important to know where information is coming from when evaluating sources for accuracy and validity and how certain domains may present information differently.

### **Evaluating Online Information and Sources**

Learners practice checking for accuracy:

- Learners research an “urban myth” and check for accuracy, then present their findings to the class;

- Learners explore various “fact checking” websites and discuss the reliability and possible bias of each;
- Learners create a check list to help identify potentially dangerous or misleading information.

## **Indicator C Activities:**

### **Organize Information**

Learners organize information from multiple online sources:

- In small groups, learners discuss how to use and name electronic folders and sub-folders to save information for easy retrieval and sharing;

### **Share, Discuss and Present Research**

Learners explore and use various tools to share, discuss and present information about a chosen or assigned research topic:

- Social bookmarking sites-
  - In small groups, learners compare and contrast the features of various social bookmarking sites (e.g., del.icio.us, digg.com, diigo.com);
  - Each learner chooses a social bookmarking site and uses it to organize and share information about his/her research topic;
- Social networking sites-
  - In small groups, learners compare and contrast the features of various social networking sites (e.g., Facebook, Twitter);
  - Each learner chooses a social networking site and uses it to share, discuss and present information about his/her research topic;

### **Using Citations in Research**

Learners practice how to properly cite references from various sources (*also see Sample Activity, Proper Citations*):

- Teacher leads a whole group discussion about doing research, writing papers, and why it is legally and ethically important to properly cite sources;
- Individual learners or small groups explore websites that show how to cite sources using the Style Manual selected (e.g., AP, APA, CMOS, MLA);

- Learners practice setting up and naming folders and sub-folders on a computer;
- Learners organize gathered information on a specific topic using appropriately named folders and sub-folders.

- Collaboration tools and software-
  - In small groups, learners compare and contrast the features of various collaboration tools (e.g., Google Apps, wikis);
  - Each learner chooses a collaborative tool and uses it to share, discuss and present information about his/her research topic;
- Multimedia presentation applications-
  - In small groups, learners compare and contrast the features of various presentation applications (e.g., PowerPoint, Prezi);
  - Each learner chooses a presentation application and uses it to create a multimedia presentation of his/her research findings.

- Each learner writes a short research paper (*may be the same research topic from the Sample Activity above*) on an appropriate topic and properly cites at least three references from various sources (e.g., book chapter, magazine or newspaper article, website);
- Learners read each others' papers and check for correct citation.

## Strand: Productivity, Creativity and Innovation

### Indicator A Activities:

#### Maximizing Use of Hand-held Devices

Learners maximize the use of their personal hand-held devices (e.g., cell phone, Smartphone) by exploring their functions and capabilities:

- Teacher surveys the class to determine which hand-held devices students in the class possess;
- Learners are grouped based on their device (e.g., Smartphone group, cell phone w/ texting capability group, cell phone w/out texting capability group, etc.)
  - Students who do not have a hand-held device may join any group they are interested in learning about;
- Learner groups examine the features available on their devices-
  - Learners list all features available (e.g., calendar, contact list, texting, calculator, alarms);

#### Ways to Increase Productivity

Learners explore and customize technological tools to increase productivity:

- Learners examine and share various ways to customize their desktop, toolbars, web browser and email application to increase productivity;

#### Exploring Distance Education

Learners research distance education opportunities to determine whether or not distance learning would help to facilitate their education:

- The teacher leads a discussion about what distance education is and what skills are important to be a successful distance learner (e.g., self motivation, organization, time management, etc.);
- Learners rate themselves in the various skill areas that are necessary as a distance learner and identify areas of strength and weakness;

- Learners discuss each feature on the list and brainstorm how each could be used to increase productivity, organization, and/or communication (learners should also discuss possible restrictions on features such as calling minutes, texting and data fees, etc.);
- Each learner categorizes the items on the list in the following categories: “already know & use”, “want to know how to use” and “not interested”;
- Learner groups present their findings to the class;
- Each learner who “wants to know how to use” a feature is paired with a learner who “already knows & uses” that feature to learn how to use it.
- Learners practice using the basic features of the software operating system and desktop elements to facilitate learning and improve productivity (e.g., calculators, spell/grammar check, thesaurus, track changes function);
- Learners integrate files from several applications to organize information and increase productivity.
- Learners brainstorm strategies to address any identified areas of weakness;
- Learners explore various distance learning opportunities-
  - ADE-sponsored DL (<http://www.azed.gov/adult-ed-ged/adult-education-classes/>)
  - Goodwill Community Foundation (<http://www.gcflearnfree.org/>)
- Interested learners enroll in a distance learning course to accelerate their learning.



## **Indicator B Activities:**

### **Blogging**

Learners create a blog to be used with class assignments:

- Learners explore various free blogging sites (e.g., [www.blogger.com](http://www.blogger.com), [www.wordpress.com](http://www.wordpress.com)) and select one to use;

### **Creating a Simple Webpage**

Learners create a Webpage to be used with class assignments:

### **Reviewing a Webpage**

Learners review Web sites and discuss as a class:

- Each learner selects a Webpage to review (e.g., celebrity/pop culture site, political site, art site, etc.) and writes a blog that critiques the site;

### **Photo Essay**

Learners develop a photo essay on a specific class lecture/topic (*also see Sample Activity, [Share, Discuss and Present Research](#)*):

- Learners choose an application to use for their photo essay;
- Learners select images from the Internet or personal digital camera to use to tell their story-

- Learners use the blog to critique and discuss assignments from class (I learned..., I agree/disagree..., I want to know more about..., etc.).
- Learners create and manage a simple Web page and post a book review, a movie review, a newspaper article review, or a compare/contrast assignment for peer review and critique.
- Learners read each others' blogs and post comments about the sites.
  - Images are saved from the Internet (while adhering to copyright restrictions) using "right-click"
  - Images are imported from digital cameras using USB or by following camera instructions;
- Learners create a photo essay using the selected application and present it to the class.

## **Indicator C Activities:**

### **What's Obsolete? What's Next?**

Learners identify technology that is obsolete (or becoming obsolete) and make predictions about future technological advancements:

- In small groups, learners brainstorm a list of all of the technological devices, practices, terminology, etc. that they can think of that is now considered “old fashioned” or obsolete (e.g., video cassettes, dialing a phone, typing on a typewriter);
- Learner groups compare lists and also look online for articles or blogs on the topic to expand their lists;

### **Job Market Research**

Learners conduct job market research and develop a personal learning plan:

- Learners use online tools (e.g., Occupational Outlook Handbook, Jobs Indexes) to conduct job market research in field(s) of interest and identify-
  - Jobs in the highest demand and the skills required (including technology skills);
  - Jobs that are obsolete (or becoming obsolete) due to technological advancements;
- Each learner develops a long-range, personal learning plan that includes-

### **Technology Journal**

Learners keep a Technology Journal over a predetermined period of time:

- In the journal, each learner tracks and describes any technology used;
- After the predetermined period of time, learners tally all of the technology used by all members of the class;
- Individually or in small groups, learners write a brief essay about which single device or application would be most difficult to live without.

*Activity Extension-- Learners use their journals to keep track of any new technologies learned over the course of the year*

- Learner groups then make predictions for future innovations and discuss the positive and negative effects on-
  - Job market;
  - Productivity;
  - Communication;
  - Relationships;
  - Etc.
- As a whole group, the class discusses any ideas, questions or concerns generated during the group activity.
  - Employment goal(s);
  - Identified skills needed;
  - Identified credentials/certifications needed;
  - Strategies and a timeframe to obtain needed skills and/or credentials/certifications;
- Learners track their progress made toward goals throughout the course of the school year.

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