

Arizona Educational Technology Standard Articulated by Grade Level

Grade 5

Strand 1 Creativity and Innovation

This strand requires that students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

Concept 1: Knowledge and Ideas

Use digital models and simulations to examine real-world connections, explore complex systems and issues, and enhance understanding.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Analyze information to generate new ideas and products.	SC 05-S1C4-01 Communicate results of investigations. Communicate verbally or in writing the results of an inquiry. SC 05-S1C4-02 Choose an appropriate graphic representation for collected data: • bar graph • line graph • Venn diagram • model M 05-S5C2-01 Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M 05-S5C2-06 Summarize mathematical information, explain reasoning, and draw conclusions. R 05-S1C1-05 Locate appropriate print and electronic reference sources (e.g., encyclopedia, atlas, almanac, dictionary, thesaurus, periodical, textbooks, CD-ROM, website) for a specific purpose. (Connected to Research Strand in Writing)	Explanation: The student uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. Science: Construct a poll or survey to gather data using an interactive digital tool, then display results. • Create an online poll for peers to answer a science related question ○ Choose the appropriate graphic representation for collected data Resources: Poll Code : http://pollcode.com/ Poll Everywhere: http://www.polleverywhere.com/# Science/Math: Examples: • After exploring a mathematical concept on the NLVM (National Library of Virtual Manipulatives) website, students solve a math “word” problem (of the same concept) by creating their own algorithm, or finding a “different way” to solve the problem. Reading:

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		Examples: - Construct a poll or survey to gather data using an interactive digital tool, then display results. - Follow directions on a webquest in order to answer questions and solve problems. - Resources: WebQuest http://www.webquest.org/ - Alternative Book Report: Hooking the Reader with a Book Cover http://www.readwritethink.org/classroom-resources/lesson-plans/book-report-alternative-hooking-977.html ELL: Same as above with considerations for vocabulary.

Strand 1 Creativity and Innovation

Concept 2: Models and Simulations

Use digital models and simulations to examine real-world connections, explore complex systems and issues, and enhance understanding.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Recognize and explain relevant interdependent elements of a digital model or simulation.	Writing 05-S3C3-01 Write a variety of functional text (e.g., directions, recipes, procedures, rubrics, labels, graphs/tables). SS 05-S1C1-01 Use the following to interpret historical data: a. timelines – B.C.E. and B.C.; C.E. and A.D. b. graphs, tables, charts, and maps SS 05-S1C1-02 Construct timelines of the historical era being studied (e.g., presidents/world leaders, key events, people). SS 05-S2C1-01 Use the following to interpret historical data:	Explanation : The student describes and illustrates a content-related concept or process using models, simulations, and concept-mapping software. The student can explore complex systems and issues using models, simulations, and new technologies such as making predictions, modifying input and reviewing results and analyze trends and forecast possibilities. Example: Students will write directions and procedures, as well as design graphics and tables, create timelines, and participate in digital simulations. Building a Timeline in Word http://www.microsoft.com/education/TimelinesWord.msp

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
	a. timelines – B.C.E. and B.C.; C.E. and A.D. b. graphs, tables, charts, and maps SS 05-S2C1-02 Construct timelines of the historical era being studied (e.g., presidents/ world leaders, key events, people). Reading 05-S3C2-02 Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions). SC 05-S4C1-01 Identify the functions and parts of the skeletal system: • protection – rib cage, cranium • support – vertebrae • movement – pelvis, femur, hip	Reading: Example: • Illustrate a the main character, antagonist and supporting characters from a literary document • Create a digital model depicting the setting of the story. Digital Models ○ Drawing programs and tools : Paint, Word ○ Web 2.0 sites - Sumo Paint http://www.sumopaint.com/home • Sketchpad http://mugtug.com/sketchpad/ • Google SketchUp http://sketchup.google.com/ • artPad http://artpad.art.com/artpad/painter/ Science: Examples: • Simulations ○ Body systems - Structure vs. Function ○ The Water Cycle The Scholastic Weather Maker http://www.scholastic.com/kids/weather/ Foss Web - Mammalian Circulatory System http://www.fossweb.com/modules3-6/LivingSystems/index.html Cells alive! http://www.cellsalive.com/cells/cell_model.htm Atmosphere and Solar System - http://www.eduplace.com/kids/hmsc/activities/simulations/gr5/unitd.html Exploring Pendulums - http://www.sciencenetlinks.com/lessons.php?DocID=179 Stop Disasters - http://www.stopdisastersgame.org/en/home.html Projectile Motion: Physics - http://phet.colorado.edu/en/simulation/projectile-motion
PO 2. Explore and experiment with system variables using	SC 05-S1C3-05 Identify possible relationships between variables in simple	Explanation: Students change variables in simulations and models to investigate and test ideas about content-related systems or concepts.

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
models or simulations.	investigations (e.g., time and distance; incline and mass of object). SC 05-S5C2-04 Demonstrate effects of variables on an object's motion (e.g., incline angle, friction, applied forces). M05-S3C4-01 Describe patterns of change including constant rate and increasing or decreasing rate. Reading 05-S3C2-01 Locate specific information from functional text (e.g., letters, memos, directories, menus, schedules, pamphlets, search engines, signs, manuals, instructions, recipes, labels, forms).	Participate in digital simulations. Examples: • Science simulations http://phet.colorado.edu/en/simulations/category/by-level/elementary-school • Robotics • Illuminations – Algebra http://illuminations.nctm.org/WebResourceList.aspx?Ref=2&Std=1&Grd=0 • NLVM (National Library of Virtual Manipulatives) – Algebra http://nlvm.usu.edu/en/nav/topic_t_2.html • Shodor - Algebra http://www.shodor.org/interactivate/activities/
PO 3. Compare and contrast two systems using a digital model or simulation.	Reading 05-S1C6-04 Use graphic organizers in order to clarify the meaning of the text. Reading 05-S2C1-03 Distinguish between major characters and minor characters.	Explanation: Students compare and contrast two systems using a digital model or simulation. Reading: The student uses graphic organizers to clarify the meaning of text and elements of literature. Examples: • Analyze and plot major and minor characters in literary text using digitized tools such as Inspiration • Concept Mapping - Bubbl.us http://www.bubbl.us • http://www.lucidchart.com • http://www.mindmeister.com • http://www.mindomo.com • http://www.gliffy.com

Arizona Educational Technology Standard Articulated by Grade Level

Strand 1 Creativity and Innovation

Concept 3: Trends and Possibilities

Use technology to forecast trends and possibilities.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Identify patterns and trends to draw conclusions and forecast possibilities.	SS 05-S5C2-02 Describe how competition, markets, and prices influence peoples' behavior. M 05-S2C1-01 Collect, record, organize, and display data using multi-bar graphs or double line graphs. M 05-S2C2-01 Describe the theoretical probability of events and represent the probability as a fraction, decimal, or percent.	Explanation: The student explores real-world issues and determines patterns and tendencies to formulate outcomes and predict future opportunities or alternatives. Examples: ● Stock market http://www.nyse.com/ http://www.themint.org/kids/what-is-the-stock-market.html ● Accessing and Investigating Population Data http://illuminations.nctm.org/LessonDetail.aspx?ID=L238 ● Tracking the Wild Ones - Use statistics about endangered species to learn more about the extent of this global concern. http://www.educationworld.com/a_lesson/03/lp310-02.shtml ● Why Do Civilizations Fall http://www.learner.org/interactives/collapse/ Home Sales Forecast: Students will investigate home sales in an assigned zip code in terms of number of homes sold, living area, and sold amount over the last 6 months. They will enter the data in a spreadsheet, graph the result and present a forecast of home sales for the next 6 months. - http://www.econedlink.org/lessons/docs_lessons/121_nn121_charts1.pdf - look online for local real estate statistics online

Arizona Educational Technology Standard Articulated by Grade Level

Strand 1 Creativity and Innovation

Concept 4: Original Works

Use technology to create original works in innovative ways.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Analyze information using digital creativity tools to create original works and express ideas	Writing 05-S1C5-01 Prepare writing in a format (e.g., oral presentation, manuscript, multimedia) appropriate to audience and purpose. SC 05-S1C4-01 Communicate verbally or in writing the results of an inquiry. Reading 05-S3C1-01 Identify the main idea and supporting details in expository text. Reading 05-S3C1-02 Distinguish fact from opinion in expository text, using supporting evidence from text. Reading 05-S3C1-03 Determine author's main purpose (e.g., to inform, to describe, to explain) for writing the expository text.	Explanation: Students analyze and evaluate information to create, innovate, and express ideas using digital tools. Science: Students use scientific processes to investigate the natural world and then share results and conclusions by communicating their results and conclusions by using creativity, innovation, and expression of ideas through: Newsletters, Brochures, Movies, Podcast/Vodcast, Digital storytelling, Web publishing Reading: Students will identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text. Examples: - Analyze media bites and create a new commercial; publish commercial - Use Digital creativity tools (camera, digital imaging, etc.) to restate, summarize or distinguish opinions and create a documentary film of reading content or literary materials. Tools - Our Nation - http://collaborativelearning.wetpaint.com/page/Our+Nation - CyberSense and Nonsense: The Second Adventure of The Three CyberPigs - http://www.media-awareness.ca/english/games/cybersense_nonsense/index.cfm - Newsletters – Word, Publisher, Open Office - Brochures - Word, Publisher, Open Office Web 2.0 Tools - My Brochure Maker http://mybrochuremaker.com

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		• Movies – iMovie, Windows Movie Maker Web 2.0 Tools - Animoto http://animoto.com/ • Podcast/Vodcast Podcasting and Education http://www.shambles.net/pages/learning/infolit/edupodcast/ How to Podcast http://www.how-to-podcast-tutorial.com/ • Digital storytelling Center for Digital Storytelling http://www.storycenter.org/index1.html • Web publishing
PO 2. Use digital collaborative tools to analyze information to produce original works and express ideas.	Writing 05-S3C3-02 Write communications, including: a. thank-you notes b. friendly letters c. formal letters d. messages e. invitations Reading 05-S3C1-01 Identify the main idea and supporting details in expository text. Reading 05-S3C1-02 Distinguish fact from opinion in expository text, using supporting evidence from text. Reading 05-S3C1-03 Determine author's main purpose (e.g., to inform, to describe, to explain) for writing the expository text.	Explanation: Students create original works as a means of personal or group expression using collaborative digital tools. Reading: Students collaborate and publish with peers, experts, or others via current and emerging technologies, such as blogs, wikis, or audio/video communication. Examples: • After reading literary or expository text, students collaborate virtually with a peer to analyze the main ideas/themes, and recreate possible outcomes. Science: Students will collaborate using digital tools to produce artifacts that express understanding gained through scientific investigations. Examples: • Use video conferencing to communicate ○ Applications ■ Skype - free download from http://www.skype.com/(check with your District policy on using Skype) ■ Resources for Skype : http://www.skype.com/intl/en-us/home Cool Cat Tips for Skype in the Classroom

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		http://coolcatteacher.blogspot.com/2006/10/using-skype-in-classroom-or-just.html 50 Awesome Ways to Use Skype in the Classroom http://www.teachingdegree.org/2009/06/30/50-awesome-ways-to-use-skype-in-the-classroom/ ● Debate a topic using online tools (blog, chat, message-board, etc.) Blogs - https://sites.google.com/site/thingstolearnwith/6-write-better-for-public-consumption---blogs ● Publish information on a topic using online tools (blog, wiki, etc.) ○ Wikispaces http://wikispaces.com Web Resources for using wikis in the classroom ■ 50 Ways to Use Wikis for a More Collaborative and Interactive Classroom http://www.smartteaching.org/blog/2008/08/50-ways-to-use-wikis-for-a-more-collaborative-and-interactive-classroom/ Google docs - students work collaboratively on projects using documents, spreadsheets, surveys and presentations http://docs.google.com/demo/edit?id=scAC-FSm5ORkkuAUOcivCkZG&dt=document#document Collaboration Tools: Edistorm http://edistorm.com/ , Wallwisher http://www.wallwisher.com , Twiddla http://www.twiddla.com/

Arizona Educational Technology Standard Articulated by Grade Level

Strand 2: Communication and Collaboration

This strand requires students to use digital media and environments to communicate and collaborate with others.

Concept 1: Effective Communications and Digital Interactions

Communicate and collaborate with others employing a variety of digital environments and media.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Communicate digitally with others by selecting and using a variety of appropriate communication tools.	Writing 05-S3C1-01 Write a narrative based on imagined or real events, observations, or memories that includes: - characters - setting - plot - sensory details - clear language - logical sequence of events Writing 05-S3C4-01 Write persuasive text (e.g., advertisements, paragraphs) that attempts to influence the reader. SS 05-S3C4-01 Describe ways an individual can contribute to a school or community. SS 05-S2C9-01 Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps).	Explanation: Students use an assortment of effective communication tools to discuss or share content-related concepts with others. Example: Writing - Choose Your Own Adventure Story Application - Use the collaborative function of Google docs for student write a “Choose Your Own Adventure Story” with other students - Use a multimedia application to create a “Choose Your Own Adventure Story” - Voicethread http://www.voicethread.com - LuLu http://www.lulu.com Publish books online - Make Beliefs Comix http://www.makebeliefscomix.com/Comix/ - Lesson Plan from Google Docs: Choose Your Own Adventure Story https://docs.google.com/View?id=ddv49vkt_10fft9ddt - Digital Storytelling - http://www.epals.com/projects/info.aspx?DivID=digital_overview - Natural Disasters Project - http://www.epals.com/projects/info.aspx?DivID=NaturalDisasters_overview - The Way We Are - http://www.epals.com/projects/info.aspx?DivID=TheWayWeAre_overview Examples: Social Studies –

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		Students create a podcast and tape a debate on the issue of personal responsibility in a democracy, one side advocating for each citizen having a responsibility to participate as a citizen – for example voting vs. the other side advocates the opposite position. Writing– Students could use the same venues to present a persuasive essay on a current event or topic. - Podcasting and Education http://www.shambles.net/pages/learning/infolit/edupodcast/ - List of numerous podcasts for use in education - There are many sites that offer tutorials for pod/vodcasting, below are a few examples - How to Podcast http://www.how-to-podcast-tutorial.com/ - How to Podcast http://www.how-to-podcast.org/ - Podcasting Tools http://www.podcasting-tools.com/how-to-podcast.htm
PO 2. Explain and demonstrate the safety and etiquette of digital environment to communicate and collaborate with intended audiences.	Writing 05-S2C3-01 Show awareness of the audience through word choice and style. Writing 05-S2C3-04 Choose appropriate voice (e.g., formal, informal) for the audience and purpose. Reading 05-S3C3-03 Identify the intended effect of persuasive strategies (e.g., peer pressure, bandwagon, repetition) that the author uses to influence readers' perspectives.	Explanation: Students need to “know your audience” in a digital environment and communicate appropriately. Examples: Writing - Students use academic language and conventions when working within an academic “digital environment (example: a classroom wiki or blog:). Students use more casual language and more relaxed conventions when communicating on a social networking site (example: FaceBook or MySpace) - When texting or emailing a friend, a student may use emoticons or “internet slang” (ex: LOL). However, in all

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		settings this would not be appropriate. Reading: When online the student can determine the intended effect of persuasive strategies and propaganda techniques (e.g. bandwagon, peer pressure, repetition, testimonial, transfer, loaded words) and make informed, appropriate choices. ● Use media examples to demonstrate peer pressure, propaganda techniques Use technology tools, such as Skype, wikis, blogs and Google Docs to collaborate on scientific finding. Applications & Web Resources: ● CyberSmart http://cybersmart.org ○ “Good Messaging Manners” ● Professor Garfield, Internet Safety and You http://www.infinitelearninglab.org

Arizona Educational Technology Standard Articulated by Grade Level

Strand 2: Communication and Collaboration

Concept 2: Digital Solutions

Contribute to project teams to produce original works or solve problems.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Communicate and collaborate for the purpose of producing original works or solving problems.	SC 05-S1C1-01 Formulate a relevant question through observations that can be tested by an investigation. SC 05-13C1-02 Formulate predictions in the realm of science based on observed cause and effect relationships. M05-S3C4-01 Describe patterns of change including constant rate and increasing or decreasing rate.	Explanation: Students will work with others to produce a product or solve problems. Science and Math Join schools from around the world as they determine how their geographic location (i.e. where they live) affects their average daily temperature and hours of sunlight. http://www.k12science.org/curriculum/tempproj3/en/ Down the Drain - Students measure/share the amount of water they use daily and compare with others around the globe. http://www.ciese.org/curriculum/drainproj/information.html Writing: Create an online community within your school/district using Ning, for students to collaboratively write and publish their writing. Free examples would include but not limited to: edmodo http://www.edmodo.com/ or schoology https://www.schoology.com/ Or using blogs or wikis Multidisciplinary: Stowaway Adventure -Students will use real time data from the Internet to track a real ship at sea, determine its destination and predict when it will arrive. In addition, they will have the opportunity to monitor the weather conditions at sea and predict when rough weather might impact on the ship's arrival time http://www.ciese.org/curriculum/shipproj/

Arizona Educational Technology Standard Articulated by Grade Level

Strand 2: Communication and Collaboration

Concept 3: Global Connections

Create cultural understanding and global awareness by interacting with learners of other cultures.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Participate in communication at a distance with others of different cultures or geographic areas to gain different perspectives of topics.	Writing 05-S3C3-05 Write communications, including: a. thank-you notes b. friendly letters c. formal letters d. messages e. invitations SS 05-S4C5-02 Describe the impact that natural events (e.g., floods, earthquakes, droughts) have on human and physical environments. SC 05-S1C4-03 Communicate with other groups or individuals to compare the results of a common investigation. Reading 05-S2C2-01 Describe the historical and cultural aspects found in cross-cultural works of literature.	Explanation: Students participate in information exchange with students from another area, or another culture. Examples: Writing Students maintain a keypal relationship virtually with students from other parts of the world. Social Studies Students inquire about the climate and natural events, such as floods, earthquakes, etc. to compare and contrast how each student's life is affected by the environment around them. Email – • Epals - http://www.epals.com/ • Keypals - http://www.bconnex.net/~kidworld/keypals4.htm Science Students explore how much water they use everyday at home and compare results with people in other parts of the world. By collecting data on water usage from people around the world students will be able to see how water use compares to others, including how different cultural practices might impact usage. Share scientific findings with students of other nations, compare and contrast results and conclusions. Down the Drain Collaborative Project - http://www.k12science.org/curriculum/drainproj/ Reading: The student can identify and comprehend a variety of literature from

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		multicultural perspectives. Examples: • Engage in multicultural “storytelling” across continents • Create virtual “ multicultural school house” environment and pair-share reading variety of genres

Arizona Educational Technology Standard Articulated by Grade Level

Strand 3: Research and Information Literacy

This strand requires that students apply digital tools to gather, evaluate, and use information.

Concept 1: Planning

Plan strategies to guide inquiry using technology.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Predict and use key words and phrases that narrow or broaden information searches.	Reading 05-S1C6-01 Predict text content using prior knowledge and text features (e.g., illustrations, titles, topic sentences, key words).	Explanation: Students practice using key words and phrases to conduct Internet searches to widen or limit the results. Examples: Reading: - Brainstorm words and synonyms that could be used in a search. - Search tools: Google, Ask, Bing Science: Conduct Internet research to find information on related science content areas (life, physical, earth and space). Applications & Web Resources: Keyword search resources http://www.google.com/sktool/# http://www.columbia.edu/cu/lweb/help/clio/keyword.html Learning to Focus Internet Research http://www.readwritethink.org/classroom-resources/lesson-plans/keywords-learning-focus-internet-1122.html Search Wizard - http://21cif.com/tools/locate/ Identifying Key Words, Synonyms, and Key Phrases http://www.kn.pacbell.com/wired/21stcent/1keyword.html Boolean Operators - http://www.kn.pacbell.com/wired/21stcent/1bool.html Using Keywords - http://cybersmartcurriculum.org/researchinfo/lessons/2-

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		3/using keywords/ Wading Through the Web: Teaching Internet Research Strategies - http://www.readwritethink.org/classroom-resources/lesson-plans/wading-through-teaching-internet-983.html
PO 2. Predict which information sources will provide the desired data.	Reading 05-S1C6-01 Predict text content using prior knowledge and text features (e.g., illustrations, titles, topic sentences, key words). SC 05-S1C3-02 Analyze whether the data is consistent with the proposed explanation that motivated the investigation.	Explanation: Students evaluate sources to determine relevance to their research. Examples: Compare search results to determine which information source provides desired information. - Looking at various search results, deciding which website is valid to obtain information from. - Finding factual information from multiple sites to ensure validity. Reading: The student can read from a variety of searched documents headings with accuracy and immediately recognize information viability. Examples: - Practice search queries to determine broad and narrow ranges of information Science: Use websites like Save the Pacific Northwest Tree Octopus or Dihydrogen Monoxide to show how the internet contains sites with claims that contain no evidence to back up statements.

Arizona Educational Technology Standard Articulated by Grade Level

Strand 3: Research and Information Literacy

Concept 2: Processing

Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Locate and synthesize information to revise search strategies.	Reading 05-S1C6-06 Use reading strategies (e.g., drawing conclusions, determining cause and effect, making inferences, sequencing) to comprehend text. SC 05-S5C1-03 Describe changes of matter: • physical – cutting wood, ripping paper, freezing water • chemical – burning of wood, rusting of iron, milk turning sour SC 05-S5C2-03 Examine forces and motion through investigations using simple machines (e.g., wedge, plane, wheel and axle, pulley, lever).	Explanation: After conducting Internet searches, the student evaluates the results and refines the search terms to get more specific information to meet his/her needs. Examples: • Conduct a search using Boolean logic http://www.internettutorials.net/boolean.asp • Conduct a search using advanced search options found when clicking “advanced” on a search engine start page. http://www.ask.com and click on “Advanced Search” Reading: The student can read from a variety of searched documents headings with accuracy and immediately recognize information viability. • Practice search queries to determine broad and narrow ranges of information Science: Compare a variety of results of searches using a different search phrases for a scientific concept such as “changes of matter” or “forces and motion”. Applications & Web Resources: • CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ○ “Rating Web Sites” ○ “Choosing a Search Site”
PO 2. Use authoritative primary and/or secondary sources.	Reading 05-S3C1-02 Distinguish fact from opinion in expository text, using supporting evidence from text.	Explanation: Students learn to distinguish between primary and secondary sources, along with evaluating the authority of sources. Examples:

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
	SC 05-S2C1-01 Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Percy Lavon Julian [scientist], supports Strand 4; Niels Bohr [scientist], supports Strand 5; Edwin Hubble [scientist], supports Strand 6). SS 05-S2C1- 04 Locate information using both primary and secondary sources.	Reading: The student can distinguish fact from opinion. - Use the Internet to show a variety of expository text including examples of fact vs opinion or biases. Science: Show students the difference between scientific journals with primary source data and more general websites containing secondary source information. - Have students identify primary and secondary source documents through finding science oriented current events Web Resources Popular Science - http://www.popsci.com/technology/article/2010-12/anonymous-activist-hackers-attack-wikileaks-enemies Scientific American http://www.scientificamerican.com/ Eisenhower National Clearinghouse (ENC) http://www.goenc.com/ Social Studies Student can compare their textbook account of an event in history with information contained in primary sources obtained from an Internet search for primary source documents. Applications & Web Resources: - Primary Sources: - EyeWitness to History http://www.eyewitnesstohistory.com/ - NASA (for Space Exploration report) http://www.eyewitnesstohistory.com/ - Government sites: ■ Dept of Health http://www.azdhs.gov/ ■ Library of Congress http://loc.gov

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		■ Police Department http://www.azdps.gov/ ● Primary and Secondary Sources: ○ PBS American Experience ■ http://www.pbs.org/wgbh/americanexperience/
PO 3. Evaluate information and media through determining facts, opinion, bias, and inaccuracies by consulting multiple sources.	Reading 05-S3C1-03 Distinguish fact from opinion in expository text, providing supporting evidence from text. S05-S1C1-01 Formulate a relevant question through observations that can be tested by an investigation. SC05-S1C1-03 Locate information (e.g., book, article, website) related to an investigation.	Explanation: Students assess content to determine fact/opinion, bias and accuracy. Consult multiple sources to determine validity. Examples: ● Research papers ● Presentations or experimentation Reading: The student can distinguish fact from opinion. ● Use the Internet to show a variety of expository text including examples of fact vs opinion or biases. Possible topics: newspaper stories about a famous person, product analysis - favorite foods and whether they are healthy or not. Science: Evaluate a biased or opinion-based scientific claim with supporting evidence and compare to multiple verifiable sources. Applications & Web Resources: Site Validity http://acoachma.tripod.com/ ● CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ○ “Rating Web Sites” ● Thinkfinity http://www.thinkfinity.org/ ○ In search window type in type “evaluate websites” ● Professor Garfield, Fact or Opinion http://www.infinitelearninglab.org
PO 4. Use appropriate digital tools	M 05-S2C1-01	Explanation: The student acquires, analyzes and manages content

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
to synthesize research information to develop new ideas and/or create new understanding.	Collect, record, organize, and display data using multi-bar graphs or double line graphs. Reading 05-S3C3-02 Identify the intended effect of persuasive vocabulary (e.g., loaded/emotional words, exaggeration, euphemisms) that the author uses to influence readers' opinions.	from digital resources to create new ideas or knowledge. Examples: Math: Use a spreadsheet (web-based or offline) to process data and display data using appropriate graph Application and Web Resources: Create a Spreadsheet (NCES) http://nces.ed.gov/nceskids/createagraph/default.aspx Circle Graph (Shodor) http://www.shodor.org/interactivate/activities/CircleGraph/ Reading: Use technological skills required to understand a wide array of informational text and gather research and present new ideas Examples: • Use online organization models to collect data, facts, resources, etc. • Create a research plan to guide inquiry • Consult multiple sources to determine validity - Research papers, news sources, books, presentations • Brainstorming Research Questions - http://www.kn.pacbell.com/wired/21stcent/lbrain.html • Categorizing Research Questions - http://www.kn.pacbell.com/wired/21stcent/lcateg.html Science: Research a scientific concept and tie to a need or problem in that area. Develop an idea to solve a human population, natural hazard, or environmental concern
PO 5. Follow copyright laws when using text, images, videos and/or other sources and obtain permission to use the work of others and cite resources	M 05-S2C1-01 Collect, record, organize, and display data using multi-bar graphs or double line graphs. M 05-S2C1-02 Formulate and answer questions by interpreting and analyzing	Explanation: Students know and obey copyright laws and fair use stipulations from text, images, music and video sources. Tip: Establish peer-review rubric to ensure the Fair-Use guidelines are followed.

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
appropriately.	displays of data, including multi-bar graphs or double line graphs. Writing 05-S3C3-01 Write a variety of functional texts (e.g., directions, recipes, procedures, rubrics, labels, posters, graphs/tables). Paraphrase information from a variety of sources (e.g., Internet, reference materials).	Math Example: Each student, in a team of 4-5, is assigned to any grade, will design and conduct a survey at least 30 students (in the grade assigned) about their use (frequency & quantity: minutes/pages/words) of any of the following media content assigned to their team (6 teams) from varied sources per class research projects in any subject area: Motion Media, Text, Poetry, Music/Lyrics/Video, Photos/Illustrations, numerical data. Students then present the survey result in a spreadsheet and generate a circle (pie) graph to show the mean (average) percentage of the use of the media investigated. Survey Generator http://www.surveymonkey.com/ They will compare these results based on the fair use guidelines as follows: ● Motion Media ○ 10% or 3 minutes ● Text ○ 10% or 1000 words ● Poetry ○ 250 words ○ no more than 3 from same author ● Music, Lyrics, Video 1 ○ 0% or 30 sec ● Photos & Illustrations ○ 5 images from one author ● Numerical Data Sets ○ 10% of 2500 fields or cells The group will publish an ad (poster/flyer/brochure/website) campaigning for the limitation of the use of media in research projects

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		and present these ad to students in each classroom on a planned Fair-Use Day ● Resource on Fair Use: Copyright Chaos ○ http://www.slideshare.net/guestb9349a/intel-s-copyright-chaos Reading: The student can correctly gather and site electronic media resources. Examples: ● Citation generator ● Use online resources to teach copyright infringements, permissions. Applications & Web Resources: ● Campaigning for Fair Use: Public Service Announcements on Copyright Awareness http://www.readwritethink.org/classroom-resources/lesson-plans/campaigning-fair-public-service-939.html ● CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ○ “Understand Your Acceptable Use Policy” ○ “Whose Is It, Anyway?” ○ “Do the Right Thing” ● Online citation generator ○ Citation Machine http://www.citationmachine.net ○ Easybib http://www.easybib.com/ ● Copyright ○ Copyright Chaos http://www.slideshare.net/guestb9349a/intel-s-copyright-chaos ○ Copyrightfriendly http://copyrightfriendly.wikispaces.com/

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		○ Thinkfinity http://www.thinkfinity.org/ ■ In search window type in type “copyright” ● Blogs ○ Publish Your Blogs https://sites.google.com/site/thingstolearnwith/6-write-better-for-public-consumption---blogs ● Pod/Vodcasting ○ Podcasting and Education http://www.shambles.net/pages/learning/infolit/edupodcast/ ■ List of numerous podcasts for use in education ○ There are many sites that offer tutorials for pod/vodcasting, below are a few examples ■ How to Create a Persuasive Podcast http://www.readwritethink.org/classroom-resources/lesson-plans/creating-persuasive-podcast-1173.html ■ How to Podcast http://www.how-to-podcast-tutorial.com/ ■ How to Podcast http://www.how-to-podcast.org/ ■ Podcasting Tools http://www.podcasting-tools.com/how-to-podcast.htm ● Brochures - Newsletters ○ Applications ■ Word ■ Publisher ● Web 2.0 Tools ○ My Brochure Maker http://mybrochuremaker.com

Arizona Educational Technology Standard Articulated by Grade Level

Strand 4: Critical Thinking, Problem Solving, Decision Making

This strand requires students to use critical thinking, problem solving, and decision making to manage projects using digital tools and resources.

Concept 1: Investigation

Identify and define authentic problems and significant questions for investigation.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Write essential questions to investigate a topic or issue using digital tools and resources.	SS05-S1C6-01 Describe factors leading to the Civil War: a. role of abolitionists and Underground Railroad b. sectionalism between North and South SS05-S1C10-02 Discuss the connections between current and historical events and issues from content studied. Reading 05-S1C6-03 Generate clarifying questions in order to comprehend text.	Explanation: Students create key questions to explore a topic or issue using digital tools. Example: ● Class wants to learn more about homelessness, after discussion class comes up with essential question; “Why are some people homeless?” Students research the issue of homelessness, determine possible solutions, and find local agencies that are working for solutions. ● Students conduct historical investigations using a variety of documents and sources. First students need to identify a given topic/event and then generate the essential questions from which they can conduct their research. Historical Scene Investigation http://web.wm.edu/hsi/?svr=www Reading: The student can employ multiple technology-based strategies to comprehend text. Examples: ● Highlight facts in reading digital documents to formulate clarifying questions ● Use digital media to connect information and events from a story or text.

Arizona Educational Technology Standard Articulated by Grade Level

Strand 4: Critical Thinking, Problem Solving, Decision Making

Concept 2: Exploring Solutions

Plan and manage activities to develop solutions to answer a question or complete a project.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Plan and manage research using credible digital resources to develop solutions to answer a question.	M 05-S3C4-01 Describe patterns of change including constant rate and increasing or decreasing rate. M 05-S5C2-01 Analyze a problem situation to determine the question(s) to be answered. SC 05-S1C3-01 Analyze data obtained in a scientific investigation to identify trends. SC 05-S1C3-02 Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).	Explanation: Students create essential question, research that essential questions, and develop solutions using reliable digital resources. Example: Math/Science: Students are assigned 2 states. They will conduct a comparative research on <i>climate index</i> VS <i>greenhouse gas inventory</i> that spans 20-30 years (e.g. 1990-2005) using NASA or Department of Energy website. They will use a spreadsheet to input and graph the result. They will use this data to determine the relationship between the 2 variables investigated as well as the rate of change in each of these variables. Based on this rate, they will predict their assigned states' <i>climate index</i> VS <i>greenhouse gas inventory</i> in the span of 50 years.
PO 2. Generate solutions from different perspectives using collected resources and data.	W 05-S3C2-01 Record information (e.g., observations, notes, lists, charts, map labels and legends) related to the topic. W 05-S3C2-03 Write in a variety of expository forms (e.g., essay, summary, newspaper article, reflective paper, log, journal). SS 05-S1C10-01 Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps). M 05-S5C2-06 Summarize mathematical information, explain reasoning, and draw conclusions.	Explanation: Students create essential questions, research multiple perspectives and develop a solution using digital resources. Example: • Class wants to learn more about homelessness, after discussion class comes up with essential question; “Why are some people homeless?” • Students research the issue of homelessness, exploring multiple perspectives on the issue. Students determine possible solutions, exploring various agencies that are working for solutions. • Students develop a specific solution and present this to the class, school or community.

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
	M05-S5C2-07 Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. SC 05-S3C1-02 Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.	Math/Science example: The students will generate solutions at the following level to reduce greenhouse gases and slow down climate change based on the data collected: state-wide, town/city, neighborhood, home, school. Applications & Web Resources: ● Collaboration Tools ○ Edistorm http://edistorm.com/ ○ Wallwisher http://www.wallwisher.com ○ Twiddla http://www.twiddla.com/ ○ Google docs - students are able to work collaboratively on projects using word processing documents, spreadsheets, surveys and presentations ● Online citation generator ○ Citation Machine http://www.citationmachine.net ○ Easybib http://www.easybib.com/

Arizona Educational Technology Standard Articulated by Grade Level

Strand 5: Digital Citizenship

This strand requires students to understand human, cultural, and societal issues related to technology practice and ethical behavior.

Concept 1: Safety and Ethics

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

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Assess situations in which it is appropriate and safe to use a personal digital device in the home, school, and community.	Reading 05-S3C3-03 Identify the intended effect of persuasive strategies (e.g., peer pressure, bandwagon, repetition) that the author uses to influence readers' perspectives. SS05-S1C10-01 Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps).	Explanation: Students learn about how, when and where a (PDA) personal digital device (Cell phone, PDA, iPod, etc) should be used. Example: - Students debate the appropriateness of PDA in and out of the classroom. - Students create short skits that reflect do's and don't of PDA's. situations and explain how, when, and where it would be appropriate or inappropriate to use a personal digital device. Reading: When online the student should be able to determine the intended effect of persuasive strategies and propaganda techniques (e.g., bandwagon, peer pressure, repetition, testimonial, transfer, loaded words) in order to make informed, appropriate choices. Examples: - Use media examples to demonstrate peer pressure, propaganda techniques. Applications & Web Resources: - Media - Professor Garfield, Forms of Media http://www.infinitelarninglab.org - Media Lesson Plans http://www.shambles.net/pages/learning/resources/medialess/
PO 2. Describe cyberbullying and describe strategies to deal with	Reading 05-S3C3-03 Identify the intended effect of persuasive strategies (e.g., peer	Explanation: Students define cyberbullying and develop strategies for preventing and responding to cyberbullies.

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
such a situation.	pressure, bandwagon, repetition) that the author uses to influence readers' perspectives. W 05-S3C4-01 Write persuasive text (e.g., advertisements, paragraphs) that attempts to influence the reader. W 05-S3C4-01 Write persuasive text (e.g., advertisements, paragraphs) that attempts to influence the reader. SS 05-S1C10-01 Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps).	Examples: Reading: Use media examples to demonstrate peer pressure, propaganda techniques. Writing Have students write a persuasive piece to their peers about cyberbullying and why it's important to be informed and important to stop cyberbullying. ● Local law enforcement agencies ● School policies Social Studies Have student create a forum on cyberbullying to be held across classes or class periods. Applications & Web Resources: ● Stop Bullying Now http://www.stopbullyingnow.hrsa.gov/kids/ ● CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ■ “The Power of Words” ■ “Group Think” ■ “Be Comfortable” ■ “Cyberbullying: Not a Pretty Picture” ■ “Cyberbullying: Who, Me? Why Should I Care?” ■ “Cyberbullying: Crossing the Line” ■ “Dealing with Cyberbullying” ● Thinkfinity http://www.thinkfinity.org/ ○ In search window type in type “cyberbullying” ● Professor Garfield, Cyberbullying http://www.infinitelearninglab.org ● Stop Bullying Now http://www.stopbullyingnow.hrsa.gov/kids/ ● The Power of Words

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		http://cybersmartcurriculum.org/cyberbullying/lessons/4-5/the_power_of_words/ - Group Think http://cybersmartcurriculum.org/cyberbullying/lessons/4-5/group_think/ - Be Comfortable http://cybersmartcurriculum.org/cyberbullying/lessons/4-5/be_comfortable/
PO 3. Identify and articulate rules for the use of digital tools as defined by school board policy and procedures.	Reading 05-S3C2-02 Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions).	Explanation: Students articulate and follow all rules decided by the school. Example: - Review and sign acceptable use policy or Student Code of Conduct Applications & Web Resources: - CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ “Understand Your Acceptable Use Policy”
PO 4. Identify and articulate strategies to protect personal information.	SS05-S1C10-01 Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps). Writing 05-S3C3-01 Write a variety of functional text (e.g., directions, recipes, procedures, rubrics, labels, graphs/tables).	Explanation: Student differentiates appropriate from inappropriate information to share online and strategies to protect privacy. Examples: Social Studies Students act out scenarios where they determine if information sharing is appropriate and what information to share. Discussion follows. Writing Students develop a set of guidelines to share with the student body regarding personal information and how to protect their privacy. Applications & Web Resources: CyberSmart

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		http://cybersmartcurriculum.org/lessonsbygrade/4-5/ “Privacy Rules” “Powerful Passwords” “Private Information” - Thinkfinity http://www.thinkfinity.org/ - In search window type in type “internet safety” - Professor Garfield, Online Safety http://www.infinitelearninglab.org
PO 5. Evaluate various websites to choose the best option for making an Internet purchase for a particular product.	M 05-S2C1-02 Formulate and answer questions by interpreting and analyzing displays of data, including multi-bar graphs or double line graphs. SC 05-S1C2-05 Record data in an organized and appropriate format (e.g., t-chart, table, list, written log). SC 05-S1C2-06 Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.	Explanation: Students search the Internet for a specific product, evaluate the results and determine the best site to purchase the product based on price, reliability of the company, delivery costs and delivery timelines. Examples: Math - Finding a product online and comparing prices, considering shipping charges. - Designing a dream house and shopping for it online Science: Research the specs and costs of purchasing a telescope for viewing the night sky Applications & Web Resources: - CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ “A Place to Advertise” “Purchasing Power” - CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ “Rating Web Sites” - Thinkfinity http://www.thinkfinity.org/ - In search window type in type “evaluate websites”

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		● Online citation generator ○ Citation Machine http://www.citationmachine.net ○ Easybib http://www.easybib.com/
PO 6. Exhibit legal and ethical behavior when using technology and discuss consequences of misuse.	Reading 05-S3C1-08 Draw valid conclusions based on information gathered from expository text. M 05-S2C1-01 Collect, record, organize, and display data using multi-bar graphs or double line graphs.	Explanation: Students review Fair Use guidelines and learn to distinguish between ethical and non-ethical or legal use of technology. Included in legal use would be: copyright (especially as it relates to music, videos and text), using networks and the Internet ethically (not hacking) and even issues teachers have at Middle school with kids damaging technology equipment in belligerent manner – i.e. changing settings on machines, putting paper clips in drives, bringing viruses from home, etc. Examples: Exploring Plagiarism , Copyright, and Paraphrasing http://www.readwritethink.org/classroom-resources/lesson-plans/exploring-plagiarism-copyright-paraphrasing-1062.html Reading: The student can draw valid conclusions about expository text, supported by text evidence. ● Use Internet resources to demonstrate legal and ethical behavior ● Use media to demonstrate viewpoints and gather points for discussions ● Establish peer-review rubric to ensure the Fair-Use guidelines are followed. Math Example: Each student, in a team of 4-5, is assigned to any grade, will design and conduct a survey at least 30 students (in the grade assigned) about their use (frequency & quantity: minutes/pages/words) of any of the following media content assigned to their team (6 teams) from varied

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		sources per class research projects in any subject area: Motion Media, Text, Poetry, Music/Lyrics/Video, Photos/Illustrations, numerical data. They will present the survey result in a spreadsheet and generate a circle (pie) graph to show the mean (average) percentage of the use of the media investigated. They will compare these results based on the fair use guidelines as follows: ● Motion Media ○ 10% or 3 minutes ● Text ○ 10% or 1000 words ● Poetry ○ 250 words ○ no more than 3 from same author ● Music, Lyrics, Video 1 ○ 0% or 30 sec ● Photos & Illustrations ○ 5 images from one author ● Numerical Data Sets ○ 10% of 2500 fields or cells The group will publish an ad (poster/flyer/brochure/website) campaigning for the limitation of the use of media in research projects and present these ad to students in each classroom on a planned Fair-Use Day ● Resource on Fair Use: Copyright Chaos http://www.slideshare.net/guestb9349a/intel-s-copyright-chaos Applications & Web Resources: ● CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ○ “Whose Is It, Anyway?”

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		● Copyright Chaos http://www.slideshare.net/guestb9349a/intel-s-copyright-chaos ● Fair Use ○ Thinkfinity http://www.thinkfinity.org/ ■ In search window type in type “fair use”

Strand 5: Digital Citizenship

Concept 2: Leadership for Digital Citizenship

Demonstrates leadership for digital citizenship.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Promote digital citizenship by consistently leading by example and advocating social and civic responsibility to others.	Writing 05-S3C2-03 Write in a variety of expository forms (e.g., essay, summary, newspaper article, reflective paper, log, journal). Reading 05-S3C2-02 Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions).	Explanation: Students demonstrate an understanding of digital citizenship by sharing the information with peers individually and in groups. Examples: Lead by example online, being socially and civilly responsible. Students ● create posters, newspaper/newsletter stories and items, email messages and other documents promoting digital citizenship. ● actively engage in online communities with civic competence ● mentor peers on appropriate digital citizenship Applications & Web Resources: ● CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ○ “Citizens of CyberSpace”

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		○ “Speak Out” ● Digital Citizenship - Using Technology Appropriately (Nine Elements) http://www.digitalcitizenship.net/Nine_Elements.html

Strand 5: Digital Citizenship

Concept 3: Impact of Technology

Develop an understanding of the cultural, historical, economic and political impact of technology on individuals and society.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Research a current technology and describe its potential use to solve an economic, environmental, health, political, scientific, or social problem.	Reading 05-S3C1-01 Identify the main idea and supporting details in expository text. Writing 05-S3C2-02 Write an expository paragraph that contains: a. a topic sentence b. supporting details c. relevant information	Explanation: Students will research a current technology and produce a digital document (report, brochures, video etc.) explaining the potential use of the technology to solve a current issue in our society. Examples: Students select an economic, environmental, health, scientific, social or scientific problem and research technological advances that address the problem. Applications & Web Resources: Thinkfinity: http://www.thinkfinity.org/ Search “technological advance in medicine”

Arizona Educational Technology Standard Articulated by Grade Level

Strand 6: Technology Operations and Concepts

This strand requires students to demonstrate a sound understanding of technology concepts, systems, and operations.

Concept 1: Understanding

Recognize, define and use technology term, processes, systems and applications.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Define and correctly use terms related to networks.	Reading 05-S1C4-02 Use context to determine the relevant meaning of a word or the intended meaning of a word with multiple meanings (e.g., hatch, arm, boot).	Explanation: Student learn correct terminology related to computer networks. Examples: • Students describe the school LAN (Local Area Network) and how it connects to the District WAN (Wide Area Network) • Students list wireless technologies and describe how they connect and access those. Students share ways to be safe when setting up a wireless network at home and how to safely use public wireless networks • Students describe bandwidth speed and how it impacts downloading software, watching videos and playing games. Students discuss how downloading software and watching videos impact network speed on the school LAN. Reading: The student uses technological vocabulary in relevant contexts. • Identify and use terminology relevant to technological use (WAN, LAN) Applications & Web Resources: • CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/ ◦ “What is a Network?” • Thinkfinity http://www.thinkfinity.org/ ◦ In search window type in type “technology terms”
PO 2. Define and apply	Reading 05-S3C2-01	Explanation: Students identify various technical processes and

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
knowledge of various technical process terms.	Locate specific information from functional text (e.g., letters, memos, directories, menus, schedules, pamphlets, search engines, signs, manuals, instructions, recipes, labels, forms). Reading 05-S1C5-02 Use context to determine the relevant meaning of a word or the intended meaning of a word with multiple meanings (e.g., hatch, arm, boot).	associate the correct terms with them. Examples of processes: - Download content from web - Insert picture in a document - Save file to server - Create a slide show - Integrate two or more current and emerging technology tools such as productivity tools into a document including but not limited to, tables, charts and graphs, graphics from paint or draw programs, and mail merge, multimedia files, web technologies, and portable files. Reading: The student identifies the proper terminology that reflects the given process and defines each term. * Can be integrated into any content area. Applications & Web Resources: - Thinkfinity http://www.thinkfinity.org/ - In search window type in type “technology terms”
PO 3. Choose technology applications appropriate for the audience and task.	SS 05- S1C4-02 Describe the significance of the following events in the Revolutionary War: - Declaration of Independence - the battles of Lexington and Concord, Saratoga - aid from France - surrender at Yorktown SS 05-S1C4-04 Describe how one nation evolved from thirteen colonies through the following events: - Constitutional Convention - George Washington’s presidency - creation of political parties	Explanation: Students are able to select the technology application best suited to a given task. - Teacher-guided practice of what to use when - Data collection (spreadsheet, database, google docs, Delicious http://www.delicious.com/) - Writing (word processing, blog, wiki) - Compare contrast (diagramming) Concept Mapping (Inspiration, Bubbl.us http://www.bubbl.us Lucidchart (http://www.lucidchart.com/) Mindmeister (http://www.mindmeister.com/) Mindomo (http://www.mindomo.com/), Gliffy (http://www.gliffy.com) - Dates - timelines (Xtimeline (http://www.xtimeline.com), TimeToast

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
	Reading 05-S1C6-04 Use graphic organizers in order to clarify the meaning of the text. Reading 05-S1C6-05 Connect information and events in a text to experience and to related text and sources.	(http://www.timetoast.com/) ○ Presentation (video (Moviemaker, iMovie, Photostory) podcast/vodcast, blog, wiki, Voicethread (http://voicethread.com/) online poster (http://www.glogster.com/), Prezi (http://prezi.com/), Presentit (http://presentit.com/), Slideshare (http://www.slideshare.net/) ○ Sound (Garageband or Audacity- http://audacity.sourceforge.net/) Examples Social Studies ● Students are given 3 different tasks - a collection of dates related to the Revolutionary War, vocabulary related to government during the Revolutionary War, a children's story with illustrations about the Revolutionary War. ● Students are asked to select the appropriate technology tool to present each group of information. ● Students can create a digital presentation to demonstrate knowledge of scientific method. * Can be applied to any content area. Examples: ● Create a video format ● Create a picture file and save in both gif and jpeg format. ● Integrate two or more current and emerging technology tools such as productivity tools, multimedia files, web technologies, and portable files. Applications & Web Resources: Microsoft Office Open Office http://www.openoffice.org/ - alternative to Microsoft Office Prezi http://prezi.com/profile/signup/ - presentation/slide show program

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		teAchnology http://www.teach-nology.com/web_tools/materials/timelines/ -timelines NCES - http://nces.ed.gov/nceskids/createagraph/
PO 4. Recognize and demonstrate ergonomically safe and sound use of equipment.		Explanation: Students understand and demonstrate proper body positioning with different types of equipment. Examples: • Students demonstrate proper keyboarding use by using a QWERTY keyboard and will sit straight, with feet flat and hands on home row position • When students are creating a document, be sure that their fingers are on home row position ASDF and JKL. • Students list ergonomic concerns when using portable devices like cell phones, ipods, PDA's etc. to avoid injuries. Applications & Web Resources: • The Ultimate Guide to Ergonomics: 50 Tips & Tricks for Serious Students http://oedb.org/library/beginning-online-learning/ultimate_guide_to_ergonomics • Computer Ergonomics for Teachers and Students http://ergo.human.cornell.edu/IEA2000/iea2000imw.pdf
PO 5. Identify physical risks of using digital technology.		Explanation: Students can articulate risks associated with the improper use of digital equipment. Examples: • Sitting in the same position with improper posture may lead to soreness in neck and back, fingers and wrists. • Carpal tunnel in the wrists can be a hazard of prolonged, improper keyboard use. • "Blackberry Thumb" - tendonitis of the thumb tendons caused by repetitive use when texting

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		Applications & Web Resources: - The Ultimate Guide to Ergonomics: 50 Tips & Tricks for Serious Students http://oedb.org/library/beginning-online-learning/ultimate_guide_to_ergonomics - Computer Ergonomics for Teachers and Students http://ergo.human.cornell.edu/IEA2000/iea2000imw.pdf

Strand 6: Technology Operations and Concepts

Concept 2: Application

Select and use applications effectively and productively.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Demonstrate speed and accuracy in use of keyboard and data entry tools with at least 20 wpm and 80% accuracy.	Writing 05-S1C5-01 Prepare writing in a format (e.g., oral presentation, manuscript, multimedia) appropriate to audience and purpose. Writing 05-S1C5-03 Use margins and spacing to enhance the final product.	Explanation: Students demonstrate competency in typing and keyboard use. Examples: - Students will take an online or program based keyboarding test that measures Words Per Minute (WPM) with mistakes per minute measured. - Students can measure their typing speed and accuracy using online resource such as www.powertyping.com - TuxType http://tux4kids.alioth.debian.org/tuxtype/index.php Reading: Students produce documents with fluency and accuracy. - WPM - keyboarding - spell check/thesaurus use

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		Applications & Web Resources: ● Online typing programs/games ○ There are numerous sites for typing, below are simply a couple of suggestions. ○ Power Typing http://www.powertyping.com ○ Typing Test http://www.typingtest.com/games/ ● Applications Typing programs such as Type To Learn 3 may also be used to improve and test typing speed/accuracy Free online typing games http://freeonlinetypinggames.com/ Free online grammar check http://www.yourdictionary.com/dictionary-articles/free-online-grammar.html
PO 2. Compose a document that applies intermediate formatting.	Writing 05-S3C3-03 Write a friendly letter that includes a: - heading - salutation - body - closing - signature Writing 05-S1C5-01 Prepare writing in a format (e.g., oral presentation, manuscript, multimedia) appropriate to audience and purpose. Writing 05-S1C5-03 Use margins and spacing to enhance the final product.	Explanation: Students learn about various document formats. Examples: ● Students compose a document such as a friendly letter or business letter with proper formatting ● Students write a formal or friendly letter to a parent, teacher or friend and follow proper editing and formatting techniques. ● Using features from the toolbars such as standard and formatting features that allow font type, page alignment and spacing are important features for formatting. Applications & Web Resources: Read, Write, Think http://www.readwritethink.org/classroom-resources/student-interactives/letter-generator-30005.html - letter generator
PO 3. Produce simple charts and graphs from data in a spreadsheet.	M 05-S2C1-01 Collect, record, organize, and display data using multi-bar graphs or	Explanation: Students create charts and graphs using specific data.

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
	double line graphs.	Math: Use spreadsheet to show mathematical relationship of data collected and determine a pattern and rate of change. Example: • Students track weather from a city of their choice from www.weather.com for five days and record their findings in a spreadsheet. Selecting the data and graphing using the chart wizard feature will produce a simple bar graph of weather temperature and days. Applications & Web Resources: NCES - http://nces.ed.gov/nceskids/createagraph/ Shodor.org http://www.shodor.org/interactivate/activities/Histogram/
PO 4. Perform simple operations in a database.	SC 05-S1C4-02 Choose an appropriate graphic representation for collected data: • bar graph • line graph • Venn diagram • model SC 05-S1C4-03 Communicate with other groups or individuals to compare the results of a common investigation.	Students create a simple spreadsheet adding multiple cells using simple functions and manually writing formulas. Examples: • Students can add two or three numbers from different cells using simple formula. • Formula for adding =sum(a1:a2) Science: Use a spreadsheet chart to collect data Sort data into categories Use simple functions to refine and present data to be analyzed Applications & Web Resources: Animal database - http://www.kidsbiology.com/animals-for-children.php Freeware database downloads - http://wareseeker.com/free-database-

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		examples-for-kids/
PO 5. Create multimedia presentations with multiple pages, audio, images, and transitions for individual assignments.	Writing 05-S3C6-01 Paraphrase information from a variety of sources (e.g., Internet, reference materials). Write an informational report that includes main ideas and relevant details. Reading 05-S3C2-02 Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions).	Explanation: Students create a simple presentation with multiple slides incorporating features such as slide transition, importing images, attaching audio clips. Example: - Students can create a presentation about inventors, state reports or scientific reports that include all of the above features. Reading: The student can create text features for a specific purpose. Examples: - Interpret details from text for the purpose of recreating a presentation including those details. - Integrate two or more current and emerging technology tools such as productivity tools, multimedia files, web technologies, and portable files. Science: Create slide shows, web pages or wikis to convey knowledge about scientific concepts
PO 6. Create a simple web page incorporating text, links, and graphics.	Writing 05-S1C5-01 Prepare writing in a format (e.g., oral presentation, manuscript, multimedia) appropriate to audience and purpose.	Explanation: Students can create a free website using online resources to create a webpage, wiki or blog to publish online Example: - Students can use blogger, wikispaces or any other free online resource to create a webpages online. Note: Can utilize any subject content. Applications & Web Resources: - Publish information on a topic using online tools (blog, wiki, etc.) - Wikispaces http://wikispaces.com

Arizona Educational Technology Standard Articulated by Grade Level

Performance Objectives	Curriculum Connections	Explanations and Examples
		Web Resources for using wikis in the classroom ■ 50 Ways to Use Wikis for a More Collaborative and Interactive Classroom http://www.smartteaching.org/blog/2008/08/50-ways-to-use-wikis-for-a-more-collaborative-and-interactive-classroom/ ○ “Publish for your Public - Blogs” https://sites.google.com/site/thingstolearnwith/6-write-better-for-public-consumption--blogs Web page creator http://www.2learn.ca/webauthoringtool/kidscreateyourpage.html Blogger.com http://www.blogger.com
PO 7. Use network storage drives to access and share information from a directory.		Explanation: Students can save to a server, external hard drive, or any other storage device. Example: ● Students can save files to a school server and access from other machines on campus. ● Saving to external hard drives or flash drives and sharing with other groups or computers is possible Science: Create web sites/pages to convey knowledge about scientific concepts Applications & Web Resources: Computer Networking for Kids http://www.ehow.com/facts_6954342_computer-networking-kids.html

Strand 6: Technology Operations and Concepts

Concept 3: Troubleshoot Systems and Processes

Define problems and investigates solutions in systems and processes.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Generate and apply solutions to troubleshoot hardware and software issues and problems.	Reading 05-S3C2-01 Locate specific information from functional text (e.g., letters, memos, directories, menus, schedules, pamphlets, search engines, signs, manuals, instructions, recipes, labels, forms). Reading 05-S3C2-02 Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions).	Explanation: Students learn how to troubleshoot computer problems. Example: ● Example problems where troubleshooting is needed: ○ File management problem (lost a file or document) ○ Receiving error or information messages ○ Connectivity problems (Internet or network) ● Using recycled desktop computers, have students disassemble and reassemble computers into working order. Loading an operating system and drivers for the system are typical software solutions for errors. Reading: The student can read instructional manuals for the purpose of troubleshooting. Examples: ● Use technology manuals of various tools (camera, ipad, computer, software) to determine the order of sequence to solve issues.

Arizona Educational Technology Standard Articulated by Grade Level

Strand 6: Technology Operations and Concepts

Concept 4: Transfer of Knowledge

Transfer current knowledge to learning of new technologies.

Performance Objectives	Curriculum Connections	Explanations and Examples
PO 1. Transfer understanding of current technologies to new and novel learning situations.	Reading 05-S3C2-01 Locate specific information from functional text (e.g., letters, memos, directories, menus, schedules, pamphlets, search engines, signs, manuals, instructions, recipes, labels, forms). Reading 05-S3C2-02 Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions).	Explanation: Students take what they know and apply it with new technologies. Example: - Students who can use drawing tools in a document program (Microsoft Word), take this knowledge and expand it when using a new 3-D imaging program (Google Sketch-up). - Students know how to use PowerPoint and transfer it to Prezi, or can take a report created in a word processor and present it in a meaningful way in a Wiki) *Can interface with many content areas. - Students must apply basic operations of hardware and software processes to a new Operating System such as Linux and find version to run on specific computer while using Open Source Software to load onto the new OS. Reading: The student can create new materials from literary text. Examples: - Read literary materials and create an online version for student with limited English proficiency; include activities - Recreate the characters in a novel using graphics generators and put the characters in a new setting to tell the same story. Applications & Web Resources: - Google Sketchup http://sketchup.google.com/ - CyberSmart http://cybersmartcurriculum.org/lessonsbygrade/4-5/