

Washington State  
K-12 Essential Academic Learning Requirements  
& Grade Level Expectations

# Educational *Technology*



Grades 9 - 12

Office of Superintendent of Public Instruction  
December 1, 2008

**For complete K-12 Educational Technology Standards go to:**

<http://www.k12.wa.us/EdTech/Standards/default.aspx>

## ***Legislative Directive***

***...OSPI shall develop essential academic learning requirements (EALRs) and grade level expectations (GLEs) for educational technology literacy and technology fluency...***

Aware of the pressing need for technology skills among high school graduates headed for higher education, career training or the job market, the 2007 Washington State Legislature directed the Office of Superintendent of Public Instruction to develop a new set of academic standards. Lawmakers called for Essential Academic Learning Requirements (EALRs) and Grade Level Expectations (GLEs) that describe what K-12 students must know and be able to do with technology. They framed these new proficiencies within a definition of basic literacy and its next level of skill development, technological fluency.

**Technology Literacy** is the ability to responsibly, creatively and effectively use appropriate technology to:

- Communicate.
- Access, collect, manage, integrate and evaluate information.
- Solve problems and create solutions
- Build and share knowledge.
- Improve and enhance learning in all subject areas and experiences.

**Technology Fluency** is demonstrated when students:

- Apply technology to real-world experiences.
- Adapt to changing technologies.
- Modify current and create new technologies.
- Personalize technology to meet personal needs, interests and learning style.

### **Legislative Directive**

***2SHB 1906, Section 16 (1)*** *Within funds specifically appropriated, by December 1, 2008, the SPI shall develop essential academic learning requirements (EALRs) and grade level expectations (GLEs) for educational technology literacy and technology fluency that identify the knowledge and skills that all public school students need to know and be able to do in the areas of technology and technology literacy and fluency.*

*The development process shall include a review of current standards that have been developed or are used by other states and national and international technology associations. To the maximum extent possible, the superintendent shall integrate goal four and the knowledge and skill areas in the other goals in the technology essential academic learning requirements.*

# ***Educational Technology Essential Academic Learning Requirements (EALRs) with Components***

## **Document Organization**

The educational technology standards are organized to map the learning proficiency sequence from 9th through 12th grade. Educators can see how a learning expectation differs from grade to grade across grade spans of 9-12.

*If learning is an act of exploration  
then technology equips the explorer  
for the journey of a lifetime.*

John Maschuk

A shaded box in an upper grade or grades indicates that proficiency was expected at an earlier grade and the knowledge and skills should be maintained.

## **EALR 1 – Integration**

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### **Components**

**1.1: Innovate:** Demonstrate creative thinking, construct knowledge and develop innovative products and processes using technology.

**1.2: Collaborate:** Use digital media and environments to communicate and work collaboratively to support individual learning and contribute to the learning of others.

**1.3: Investigate and Think Critically:** Research, manage and evaluate information and solve problems using digital tools and resources.

## **EALR 2 – Digital Citizenship**

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

### **Components**

**2.1: Practice Safety:** Practice safe, legal and ethical behavior in the use of information and technology.

**2.2: Operate Systems:** Understand technology systems and use hardware and networks to support learning.

**2.3: Select and Use Applications:** Use productivity tools and common applications effectively and constructively.

**2.4: Adapt to Change (Technology Fluency):** Transfer current knowledge to new and emerging technologies. (Grades 6-12 only)

## Understanding Grade Level Expectations

### Required:

An **Essential Academic Learning Requirement (EALR)** is a broad statement of the learning that applies to Grades K–12.

The **Component** is a statement that further defines and provides more specific information about the EALR. There is at least one component for each EALR.

The **Grade Level Expectation (GLE)** is a statement containing the essential content or process to be learned and the cognitive demand required to learn it. A revision of Bloom’s Taxonomy was used to categorize the cognitive demand required of the student. Each GLE includes evidence of learning statements, which are considered essential to the GLE.

The GLE **Numbering System** identifies the EALR, the component and the GLE, in that order. In the example at right, the number 2 indicates the EALR, the number 2.1 indicates the component and the number 2.1.2 indicates the GLE. Note: Grade levels are not referenced in the numbering system.

The **Evidence of Learning** is a bulleted list of ways students can demonstrate learning considered essential to the GLE. Educators are encouraged to identify additional ways in which the student can show proficiency as the educational technology GLEs are integrated across the curriculum.

### Suggested:

The **Examples** provide specific illustrations of the learning. However, these examples are not exhaustive, and educators are encouraged to find multiple ways by which learners can demonstrate what they know.

*Note: Examples in EALR 2 – Digital Citizenship – do not have suggested subject areas or Basic/21st Century examples as those in EALR 1 – Integration (see next page).*

### EALR 2 — DIGITAL CITIZENSHIP

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

#### Component 2.1: Practice Safety

Demonstrate safe, legal and ethical behavior in the use of information and technology.

GLE	Grade 11/12
2.1.2	<b>Practice ethical and respectful behavior.</b>
<b>Evidence of Learning</b>	<ul style="list-style-type: none"> <li>▪ Comply with district Acceptable Use Policy (AUP).</li> <li>▪ Practice ethical and appropriate use of all media and comply with copyright law.</li> <li>▪ Participate and engage with the global community within expected norms of behavior and positive interaction.</li> <li>▪ Recognize, report and counteract cyberbullying.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• Rewrite your school’s Acceptable Use Policy so that elementary students can understand it.</li> <li>• Cite all sources properly.</li> </ul>

## Understanding the Examples in EALR 1 – Integration

There are two types of examples given at each grade level in EALR 1 – Integration:

- Basic Level.
- 21st Century Learning Environment.

### Basic Level

Annual inventory data indicates that 99%+ of classrooms, statewide, have at least one computer connected to the Internet; many classrooms have access to an LCD projector or a document camera. Given this level of technology presence, all educators can reasonably use the examples, or their equivalent, at the Basic Level.

### 21st Century Learning Environment

For schools that have moved beyond the Basic Level, the 21st Century Learning Environment examples are intended to provide achievable outcomes using available technological tools. The long-term goal is to move all classroom instruction to 21st century learning environments with ongoing professional development.

<b>Examples</b>	<b>Basic Level</b>
	<ul style="list-style-type: none"> <li>• Participate in desktop or group videoconferencing with local, state, national or international learners. <b>R, W, Sc, SS, C, WL</b></li> </ul>
	<b>21st Century Learning Environment</b>
	<ul style="list-style-type: none"> <li>• Create video digital stories; publish to a storytelling website and trade comments and ideas with storytellers from around the globe. <b>R, W, WL</b></li> </ul>

### Subject Area References

In the Integration EALR, examples also include a suggested subject area or areas into which the technology standards could be integrated (**R** = Reading, **W** = Writing, **M** = Mathematics, **Sc** = Science, **SS** = Social Studies, **C** = Communication, **A** = The Arts, **H/F** = Health and Fitness, **CTE** = Career and Technical Education, **WL** = World Languages). OSPI anticipates that each one of these will be linked on the OSPI website to a high quality, standards-based lesson aligned to specific Grade Level Expectations or Performance Expectations for that subject area. All examples will be updated regularly as technology changes.

Access the latest version of the technology standards on the Grade Level Resources website at <https://eds.ospi.k12.wa.us/ealrs/>

## GRADES 9 - 12

### EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

#### Component 1.1 Innovate

Demonstrate creative thinking, construct knowledge and develop innovative products and processes using technology.

GLE	9	10	11/12
1.1.1	<b>Generate ideas and create original works for personal and group expression using a variety of digital tools.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>▪ Combine technologies to create and share products from different content areas.</li> <li>▪ Create digital products for culminating projects or inclusion in portfolios.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>• Enhance a presentation by adding graphics and sounds. <b>R, W, M, Sc, SS, C, A, H/F, CTE</b></li> </ul>	<ul style="list-style-type: none"> <li>• Enhance a presentation by adding images, video and audio files. <b>R, W, M, Sc, SS, C, A, H/F, CTE</b></li> </ul>	<ul style="list-style-type: none"> <li>• Use a wide variety of digital media to collect and present information for a Senior Project. <b>R, W, M, Sc, SS, C, A, H/F, CTE</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>• Create a virtual literature trip when reading an assigned historic novel, map important parts, integrate textual excerpts with archival images, and video of evidence and eyewitness accounts from the American Memory database sponsored by the Library of Congress. <b>R, SS</b></li> </ul>	<ul style="list-style-type: none"> <li>• Compare the merits of different presentation software to communicate results from a national survey. <b>R, W, M, Sc, SS, C, A, H/F, CTE</b></li> </ul>	<ul style="list-style-type: none"> <li>• Publish chemistry lab reports using blogs in order to share results with peers, receive input and data from other sources and process and display data. <b>Sc</b></li> </ul>

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## EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.1 Innovate

Demonstrate creative thinking, construct knowledge and develop innovative products and processes using technology.

GLE	9	10	11/12
1.1.2	<b>Use models and simulations to explore systems, identify trends and forecast possibilities.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>Analyze survey data, report information and display the data in a variety of ways to support conclusions.</li> <li>Identify patterns and correlations of data to build understanding and recognize relationships between common and uncommon elements.</li> <li>Determine and explore cause and effect using virtual simulations in different contexts.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>Collect data on stress points in different Popsicle bridge designs and analyze the data to make hypotheses about general bridge-making principles. <b>Sc, CTE</b></li> </ul>	<ul style="list-style-type: none"> <li>Use the results of an online survey to determine which products customers prefer in the student store. <b>CTE</b></li> </ul>	<ul style="list-style-type: none"> <li>Research, analyze and share information regarding career paths (e.g., use <i>WOIS</i> or <i>CareerVoyages</i>). <b>R, W, C</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>Participate in an online simulation (e.g., students act as reporters breaking a story on a mysterious outbreak of illness in an elementary school; <i>Be A Reporter Game</i> by <a href="http://NewsU.org">NewsU.org</a>). <b>W</b></li> </ul>	<ul style="list-style-type: none"> <li>Design, create and play simple video games and simulations to illustrate concepts. <b>R, W, C, Sc, SS</b></li> <li>Compare and contrast post-secondary options using multimedia software. <b>R, W, C</b></li> </ul>	<ul style="list-style-type: none"> <li>Participate in an online simulation that investigates a current global concern. <b>Sc, SS</b></li> </ul>

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## EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.2 Collaborate

Use digital media and environments to communicate and work collaboratively to support individual learning and contribute to the learning of others.

GLE	9	10	11/12
1.2.1	<b>Communicate and collaborate to learn with others.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>Interact and collaborate with others using a variety of digital tools.</li> <li>Communicate information and ideas effectively to multiple audiences using a variety of media and formats.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>Share documents to collaborate and peer-edit short stories and expository writing. <b>R, W</b></li> </ul>	<ul style="list-style-type: none"> <li>Collect school-wide data in a spreadsheet and create charts or other graphical representations (e.g., bacteria counts from household kitchen appliances). <b>Sc, H/F</b></li> </ul>	<ul style="list-style-type: none"> <li>Practice foreign language skills using online tools. <b>WL</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>Compose music using digital tools and post online for peer review. <b>A</b></li> </ul>	<ul style="list-style-type: none"> <li>Participate in an online music community (e.g., share and comment on lyrics, tracks, music clips, beats, samples and remixes). <b>A</b></li> </ul>	<ul style="list-style-type: none"> <li>Rewrite the lyrics to a folk song, record and store the music files to be remixed by classmates. <b>W, A</b></li> </ul>

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Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.2 Collaborate

Use digital media and environments to communicate and work collaboratively to support individual learning and contribute to the learning of others.

GLE	9	10	11/12
1.2.2	<b>Develop cultural understanding and global awareness by engaging with learners of many cultures.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>Build empathy by learning about many cultures through digital content from around the world.</li> <li>Participate in an online community dedicated to understanding or solving a local or global issue.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>Contribute to an online project that combines photos and personal stories in order to share perspectives and understanding. <b>R, W, Sc, SS, A, WL</b></li> </ul>	<ul style="list-style-type: none"> <li>Interact online with other students within your community, from various regions, states or other countries to compare and contrast high school experiences. <b>W, SS, C, WL</b></li> </ul>	<ul style="list-style-type: none"> <li>Participate in desktop or group videoconferencing with local, state, national or international learners. <b>R, W, Sc, SS, C, WL</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>Participate in a world-wide writing workshop which has students writing, editing and publishing stories on a wiki and then publishing to a blog. <b>R, W, C, WL</b></li> </ul>	<ul style="list-style-type: none"> <li>Engage in a discussion board pertinent to a current global event. <b>R, W, Sc, SS, C, WL</b></li> </ul>	<ul style="list-style-type: none"> <li>Create video digital stories, publish to a storytelling website and trade comments and ideas with storytellers from around the globe. <b>R, W, WL</b></li> </ul>

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## EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.3 Investigate and Think Critically

Research, manage and evaluate information and solve problems using digital tools and resources.

GLE	9	10	11/12
1.3.1	<b>Identify and define authentic problems and significant questions for investigation and plan strategies to guide inquiry.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>Explore possible topics and available information on current issues using databases and digital resources to organize a project or solve a problem.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>Identify sources using a database to research material for a persuasive speech. <b>R, W, Sc, SS, C, H/F</b></li> </ul>	<ul style="list-style-type: none"> <li>Use global online news media to compare point of view or bias of the same event. <b>R, W, Sc, SS, C, H/F</b></li> </ul>	<ul style="list-style-type: none"> <li>Compare and contrast information found about the same global issue from different databases and analyze bias and fairness to the topic. <b>W, Sc, SS, C, H/F, CTE</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>Compare and contrast norms of healthy behavior by collecting and analyzing data on student health (e.g., measure BMI, physical fitness and nutrition using digital tools). <b>Sc, H/F</b></li> </ul>	<ul style="list-style-type: none"> <li>Analyze scientific data and draw conclusions (e.g., participate in an online project collecting data on frog populations and habitat). <b>Sc</b></li> </ul>	<ul style="list-style-type: none"> <li>Engage in an online mock debate on current issues. <b>R, Sc, SS, C, H/F</b></li> <li>Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address career needs. <b>R, W, Sc, SS, C, H/F, CTE</b></li> </ul>

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## EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.3 Investigate and Think Critically

Research, manage and evaluate information and solve problems using digital tools and resources.

GLE	9	10	11/12
1.3.2	<b>Locate and organize information from a variety of sources and media.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>▪ Select the appropriate search engines or directories.</li> <li>▪ Use advanced functions of search engines and databases.</li> <li>▪ Catalog and organize resources.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>• Use online citation websites to learn how to correctly cite sources. <b>W</b></li> </ul>	<ul style="list-style-type: none"> <li>• Use advance search features in a library database to identify documents for different purposes. <b>R, W, M, Sc, SS, C, H/F</b></li> </ul>	<ul style="list-style-type: none"> <li>• Develop a digital plan to organize a culminating project. <b>R, W, M, Sc, SS, C, H/F, CTE</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>• Use an online calendar to plan a semester-long art project that uses the work of several students assembled into a large installation. <b>A</b></li> </ul>	<ul style="list-style-type: none"> <li>• Create a digital photo gallery that depicts the Industrial Revolution using royalty free images with permission. <b>SS</b></li> </ul>	<ul style="list-style-type: none"> <li>• Create a Gantt chart to manage a project that constructs a business plan for a new enterprise in the local community. <b>R, M, C</b></li> </ul>

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## EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.3 Investigate and Think Critically

Research, manage and evaluate information and solve problems using digital tools and resources.

GLE	9	10	11/12
1.3.3	<b>Analyze, synthesize and ethically use information to develop a solution, make informed decisions and report results.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>▪ Combine information from separate sources to produce, support and counter arguments.</li> <li>▪ Assess the credibility, validity and potential bias of online resources.</li> <li>▪ Apply copyright law to correctly excerpt, paraphrase and publish results to a wider audience.</li> <li>▪ Cite sources using bibliography tools.</li> <li>▪ Select relevant sources for a particular purpose or audience.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>• Practice extracting portions of sources from teacher-provided articles in accordance with copyright law.</li> </ul> <p>W</p>	<ul style="list-style-type: none"> <li>• Research alternative energy use options by exploring several websites, books, reference materials and interviewing experts.</li> </ul> <p>W, Sc</p>	<ul style="list-style-type: none"> <li>• Research a current topic and select online information that is appropriate and credible to support a point of view.</li> </ul> <p>W</p>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>• Compare and contrast the relative strengths of various search engines and databases.</li> </ul> <p>R, W, Sc, SS, C</p>	<ul style="list-style-type: none"> <li>• Evaluate the reliability of news reports on voting machine issues in the 2004 election by tracing the sources (e.g., press releases and academic research) the reports were based on.</li> </ul> <p>R, W, Sc, SS, C</p>	<ul style="list-style-type: none"> <li>• Survey and analyze media coverage of a topic over several decades and publish an evaluation on a wiki.</li> </ul> <p>R, W, Sc, SS, C</p>

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## EALR 1 — INTEGRATION

Students use technology within all content areas to collaborate, communicate, generate innovative ideas, investigate and solve problems.

### Component 1.3 Investigate and Think Critically

Research, manage and evaluate information and solve problems using digital tools and resources.

GLE	9	10	11/12
1.3.4	<b>Use multiple processes and diverse perspectives to explore alternative solutions.</b>		
Evidence of Learning	<ul style="list-style-type: none"> <li>▪ Explore and integrate alternative concepts and feedback from multiple audiences.</li> <li>▪ Develop a range of problem-solving skills.</li> </ul>		
Examples	<b>Basic Level</b>		
	<ul style="list-style-type: none"> <li>• Identify and analyze websites with opposing points of view. <b>R, W, SS, C</b></li> </ul>	<ul style="list-style-type: none"> <li>• Use online survey results to analyze different points of view regarding an identified problem at school. <b>R, W, M, Sc, SS, C, H/F</b></li> </ul>	<ul style="list-style-type: none"> <li>• Identify a local issue or problem and investigate how other communities have solved a similar issue and share results online. <b>R, W, Sc</b></li> </ul>
	<b>21st Century Learning Environment</b>		
	<ul style="list-style-type: none"> <li>• Participate in a class project through iEARN (International Education and Resource Network). <b>R, W, M, Sc, SS, C, H/F, A</b></li> </ul>	<ul style="list-style-type: none"> <li>• Subscribe to RSS feeds of relevant websites, blogs and other online references in order to follow the development of a social issue. <b>R, W, Sc, SS, C, H/F, CTE</b></li> </ul>	<ul style="list-style-type: none"> <li>• Use GIS software to evaluate social and economic data to analyze population and economic trends. <b>SS, C</b></li> </ul>

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## EALR 2 — DIGITAL CITIZENSHIP

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

### Component 2.1 Practice Safety

Demonstrate safe, legal and ethical behavior in the use of information and technology.

GLE	9	10	11/12
<b>2.1.1</b>	<b>Practice personal safety.</b>		
<b>Evidence of Learning</b>	<ul style="list-style-type: none"><li>▪ Practice the safe and responsible sharing of information, data and opinions online.</li><li>▪ Protect access to passwords and digital accounts.</li><li>▪ Recognize potential online dangers.</li><li>▪ Understand privacy issues and how data is archived and publicly available.</li></ul>		
<b>Examples</b>	<ul style="list-style-type: none"><li>• Demonstrate knowledge of passwords, privacy and anonymity and recognize spam, phishing, 419 fraud and identity theft.</li></ul>	<ul style="list-style-type: none"><li>• Demonstrate knowledge of passwords, privacy and anonymity and recognize spam, phishing, 419 fraud and identity theft.</li></ul>	<ul style="list-style-type: none"><li>• Demonstrate knowledge of passwords, privacy and anonymity and recognize spam, phishing, 419 fraud and identity theft.</li></ul>

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**EALR 2 — DIGITAL CITIZENSHIP**

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

**Component 2.1 Practice Safety**

Demonstrate safe, legal and ethical behavior in the use of information and technology.

GLE	9	10	11/12
<b>2.1.2</b>	<b>Practice ethical and respectful behavior.</b>		
<b>Evidence of Learning</b>	<ul style="list-style-type: none"> <li>▪ Comply with district Acceptable Use Policy (AUP).</li> <li>▪ Practice ethical and appropriate use of all media and comply with copyright law.</li> <li>▪ Participate and engage with the global community within expected norms of behavior and positive interaction.</li> <li>▪ Recognize, report and counteract cyberbullying.</li> </ul>		
<b>Examples</b>	<ul style="list-style-type: none"> <li>• Compare Acceptable Use Policies:               <ul style="list-style-type: none"> <li>- Student to staff.</li> <li>- School to school.</li> </ul> </li> <li>• Cite all sources properly.</li> </ul>	<ul style="list-style-type: none"> <li>• Predict how technology misuse could damage business processes and relationships.</li> <li>• Cite all sources properly.</li> </ul>	<ul style="list-style-type: none"> <li>• Rewrite your school’s Acceptable Use Policy so that elementary students can understand it.</li> <li>• Cite all sources properly.</li> </ul>

**EALR 2 — DIGITAL CITIZENSHIP**

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

**Component 2.2 Operate Systems**

Understand technology systems and use hardware and networks to support learning.

GLE	9	10	11/12
2.2.1	<b>Develop skills to use technology effectively.</b>		
Evidence of Learning	<ul style="list-style-type: none"><li>▪ Learn new vocabulary as technologies emerge.</li><li>▪ Meet keyboarding proficiency standards.</li><li>▪ Apply correct network procedures.</li><li>▪ Manage files effectively.</li></ul>		
Examples	<ul style="list-style-type: none"><li>• Complete a Digital Communication Tools (DigiTools) or a computer applications class.</li><li>• Use access rights independently for a variety of storage applications (e.g., local, network or external drives).</li></ul>	<ul style="list-style-type: none"><li>• Use access rights independently for a variety of storage applications (e.g., local, network or external drives).</li></ul>	

## EALR 2 — DIGITAL CITIZENSHIP

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

### Component 2.2 Operate Systems

Understand technology systems and use hardware and networks to support learning.

GLE	9	10	11/12
2.2.2	<b>Use a variety of hardware to support learning.</b>		
Evidence of Learning	<ul style="list-style-type: none"><li>▪ Apply prior knowledge to operate digital equipment.*</li><li>▪ Implement adaptive approach to digital equipment problem solving.</li></ul>		
Examples	<ul style="list-style-type: none"><li>• Seek out technology mentors and online resources.</li></ul>	<ul style="list-style-type: none"><li>• Find, participate in and learn from online forums and discussion boards.</li></ul>	<ul style="list-style-type: none"><li>• Identify and share solutions and ideas within a larger learning community that extends beyond the classroom.</li></ul>

\*Digital equipment can include digital and document cameras, microphones, computers, various handheld devices, assistive technologies, scanners, classroom response systems, microscopes, pedometers, interactive whiteboards, GPS, etc.

## EALR 2 — DIGITAL CITIZENSHIP

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

### Component 2.3 Select and Use Applications

Use productivity tools and common applications effectively and constructively.

GLE	9	10	11/12
<b>2.3.1</b>	<b>Select and use common applications.</b>		
<b>Evidence of Learning</b>	<ul style="list-style-type: none"><li>▪ Use software to reinforce skills in all subject areas.</li><li>▪ Create and publish multimedia projects.</li><li>▪ Use multiple features of a:<ul style="list-style-type: none"><li>- Word processing or publishing program.</li><li>- Spreadsheet program.</li><li>- Presentation program.</li><li>- Database program.</li></ul></li></ul>		
<b>Examples</b>	<ul style="list-style-type: none"><li>• Create an interactive digital product about the periodic table.</li><li>• Create a portfolio of digital images.</li><li>• Create a presentation using custom animation features.</li></ul>	<ul style="list-style-type: none"><li>• Design and produce a DVD with video, images and an audio soundtrack (e.g., interview a military veteran speaking about his or her experience).</li><li>• Analyze results from a chemistry lab experiment using a spreadsheet or database.</li></ul>	<ul style="list-style-type: none"><li>• Design and record a multi-track podcast (e.g., book report with voice main track and background theme music).</li><li>• Demonstrate knowledge of various advanced features of a productivity application (e.g., macros, add-ons, master document and track changes).</li></ul>

## EALR 2 — DIGITAL CITIZENSHIP

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

### Component 2.3 Select and Use Applications

Use productivity tools and common applications effectively and constructively.

GLE	9	10	11/12
<b>2.3.2</b>	<b>Select and use online applications.</b>		
<b>Evidence of Learning</b>	<ul style="list-style-type: none"><li>▪ Explore and evaluate various databases and other sources.</li><li>▪ Use collaborative technologies to support learning.</li><li>▪ Design and publish content incorporating a variety of media and formats.</li></ul>		
<b>Examples</b>	<ul style="list-style-type: none"><li>• Participate in school-approved online groups to support learning.</li></ul>	<ul style="list-style-type: none"><li>• Improve individual productivity using collaborative networking tools and develop personal learning networks.</li></ul>	<ul style="list-style-type: none"><li>• Use appropriate collaborative networks according to purpose or interest (e.g., <i>TakingItGlobal</i> for social justice).</li></ul>

**EALR 2 — DIGITAL CITIZENSHIP**

Students demonstrate a clear understanding of technology systems and operations and practice safe, legal and ethical behavior.

**Component 2.4 Adapt to Change (Technology Fluency)**

Transfer current knowledge to new and emerging technologies.

GLE	9	10	11/12
2.4.1	<b>Formulate and synthesize new knowledge.</b>		
<b>Evidence of Learning</b>	<ul style="list-style-type: none"><li>▪ Apply technology to real-world experiences.</li><li>▪ Adjust to changing technologies.</li><li>▪ Modify current and create new technologies.</li><li>▪ Personalize technology to meet individual needs, interests and learning styles.</li></ul>		
<b>Examples</b>	<ul style="list-style-type: none"><li>• Create and publish original multimedia products (e.g., music, video, literature).</li></ul>	<ul style="list-style-type: none"><li>• Evaluate the effectiveness, appropriateness or stability of a new social networking site for sharing information in a school newspaper.</li></ul>	<ul style="list-style-type: none"><li>• Modify a virtual world environment by creating a representation of an assigned novel, with images of important parts of the book.</li></ul>

## ***Glossary***

**419 Fraud:** An email scam in which the solicitor offers large sums of money in return for a smaller upfront investment.

**Acceptable Use Policy (AUP):** A school or organization's official policy statement regarding the use of the Internet or other computer networks.

**Anonymity:** The quality or state of being anonymous (not named or identified, of unknown authorship).

**Anonymous Online Name:** A name that is not identifiable, lacking individuality, distinction or recognizability.

**Application:** A computer or software program, activated by a user that can perform a specific function or functions.

**Authentic Problem:** A genuine, real or original problem to be solved.

**Blog:** A diary or personal journal kept on a website,

usually updated frequently, that might be private or might be intended for public viewing.

**Bookmark:** A marker that allows a user to navigate to a website on the Internet to allow for rapid access.

**Browser:** See Web Browser.

**CD-ROM (Compact Disk Read-Only Memory):** A portable storage device for computer files.

**Clip Art:** Graphics that can be cut and pasted electronically into documents. Clip art can be photographs, maps, diagrams, illustrations or cartoons.

**Concept Mapping:** A technique for visualizing the relationships among different concepts which can be used as a tool in defining a research topic.

**Copyright Law:** Law that provides protection to the authors of "original works of authorship," including literary, dramatic, musical,

artistic and certain other intellectual works.

**Creative Commons:** Creative Commons licenses are designed to facilitate and encourage more versatility and flexibility in copyright law.

**Cyberbullying:** Involves the use of information and communication technologies to support deliberate, repeated and hostile behavior by an individual or group that is intended to harm others.

**Database:** A collection or listing of information, usually organized with searchable elements or fields. For example, a library catalog can be searched by author, title or subject.

**Desktop:** The background area on a computer screen which usually contains an icon for the hard drive and trash can (used to remove files). Folders, files, applications and a working

document may also appear on the desktop window.

**Digital Stories:** A variety of new forms of digital narratives (web-based stories, interactive stories, hypertexts and narrative computer games).

**Digital Tools:** Hardware and software that generate, store and process data.

**Document:** Any self-contained piece of work created using an application program.

**Document Camera:** A camera mounted on a stand, able to capture text or 3-dimensional objects. The image is typically displayed through a projector.

**DVD (Digital Video Disk):** A digital storage medium, the same physical size as a CD-ROM disk, that can store massive amounts of data including graphics and full motion video.

**Electronic Portfolio:** A collection of electronic evidence assembled and managed by a user. Also known as an e-portfolio or a digital portfolio.

**Email (Electronic Mail):** The electronic transmission of letters, messages and memos from one computer to another over a network.

**Empathy:** The recognition and understanding of the states of mind, beliefs, desires, and particularly, emotions of others. It is often characterized as the ability to experience the outlook or emotions of another.

**Enter Key:** A key located at the right end of the third row from the bottom on a QWERTY keyboard. Pressing the enter key performs a typed or highlighted command. In a word processing program, the enter key starts a new paragraph.

**Equity:** In the context of instructional technology, equity is often used to refer to the equal availability of technology to all students regardless of socioeconomic status, culture, locale, gender, age or race.

**Folksonomy:** A taxonomy generated by Internet users that identifies and classifies web pages, images, links, etc.

**Formats:** The layout, presentation or arrangement of data on a screen or paper. May also refer to filename or type of file.

**Gantt Chart:** A type of bar chart used in process or project planning and control to display planned work targets for completion of work in relation to time.

**GIS (Graphical Information Systems) Software:** An information system for capturing, storing, analyzing, managing and presenting geographic data which is linked to location.

**GPS (Global Positioning System):** A system of satellites that allows one's position to be calculated with great accuracy by the use of an electronic receiver.

**Graphic Organizer:** An application that allows users to combine both icons (graphics) and text to give structure and logic to a project or presentation. Also known as storyboard software.

**Hard Drive:** The primary storage device for a computer. Also called hard disk. It is where applications and files are stored.

**Hardware:** Physical equipment, components or devices.

**Help Wizard:** An application that provides assistance for users who need help by topic.

**Hyperlink:** Content on a website which can be “clicked on” with a mouse, which in turn will take a person to another web page or a different area of the same web page.

**Hypertext:** The primary way to navigate between web pages and among websites. Hypertext on web pages has been expanded to include hyperlinks from text, a picture or a graphic and from image maps.

**Identity Theft:** Term for the criminal act of stealing personal information with the intent to use it to create similar identities without the victim’s knowledge.

**Installer:** A program used to update or install software programs.

**Interactive Whiteboard:** A large touch sensitive display that connects to a computer and projector.

**Internet:** A global communications network that is a collaborative effort among educational institutions, government agencies, various commercial and nonprofit organizations and individual users.

**Keyboard:** The main input device for computers. Keyboards are modeled on typewriter keys but have additional keys that enhance their function.

**KWL Chart:** An instructional technique. Students list K = What I Know, W = What I want to know and L = What I learned. In early grades, activity is conducted as a group.

**LCD Projector:** See Projector.

**Link:** See Hyperlink.

**Multimedia:** Digital products that integrate interactive text, images, sound and color. Multimedia can be anything from a simple

PowerPoint slide show to a complex interactive simulation.

**Network:** A collection of computers that are linked together for the purpose of sharing information.

**Online:** A common term used to refer to being connected to the Internet.

**Online Community:** A meeting place on the Internet for people who share common interests. Online communities can be open to anyone or limited to members only. Some online communities have a moderator.

**Password:** A series of characters that enables a user to gain access to a file, computer or program.

**Paste:** A command that transfers text or graphics from the clipboard to the document at the location of the cursor.

**Phishing:** The practice of convincing someone to divulge confidential information they normally would not provide to a stranger. The purpose of phishing is to gather the

information needed to steal a victim's money or identity.

**Plagiarism:** Using another person's ideas or creative work without giving credit to that person.

**Podcast:** A media file that is distributed over the Internet using syndication feeds, for playback on portable media players and personal computers.

**Pop-ups:** A secondary web browser window of varying size, often containing a form of advertising, which opens outside of the primary web browser window.

**Portfolio:** See Electronic Portfolio.

**Program:** A set of instructions describing operations for a computer to perform to accomplish a task. See Application.

**Projector:** One of several devices that can be connected to a computer to display information to an audience. The most common devices are video projection units and video converters for television monitors.

**Public Domain:** Information that has been made available to the general public and is distributed and redistributed without copyright or patent.

**Research:** Careful study, investigation and experimentation aimed at discovering or interpreting facts to create new knowledge or understandings on the part of the researcher.

**Response System:** A system that allows users to respond to questions posed by the presenter using interactive hand-held devices that resemble a television remote control.

**RSS (Really Simple Syndication):** A format for delivering regularly changing web content. Many news-related sites, weblogs and other online publishers syndicate their content as an RSS feed.

**Search Engine:** A program that searches documents for specified keywords and returns a list of the documents where the keywords were found.

**Section 508:** The section of the 1998 Rehabilitation Act that states that all electronic and information technology procured, used or developed by the federal government after June 25, 2001, must be accessible to people with disabilities.

**Shortcut Keys:** The keys or key combinations that provide quick access to frequently performed commands or operations.

**Social Bookmarking:** Web-based applications that allow users to store, classify, share and search links through the practice of folksonomy on the Internet or an intranet.

**Social Networking:** A category of Internet applications to help connect friends, business partners or other individuals together.

**Software:** The instructions that tell a computer what to do. See Application.

**Spam:** Unsolicited, unwanted junk email.

**Spreadsheet:** Application program that manipulates numerical and string data in rows and columns of cells.

**Tablet:** A notebook or slate-shaped mobile computer, equipped with touch-screen technology which allows the user to operate the computer with a stylus or digital pen, instead of a keyboard or mouse. Also known as a Pen computer.

**Tag:** A relevant keyword or term associated with, or assigned to, a piece of information – picture, article or video clip, etc. – which describes the content and makes keyword-based classification possible.

**Video:** The visual presentation of information.

**Videoconferencing:** The ability for two or more participants to meet from different locations by using computer networks to transmit audio and video

data. Usually requires user to have a camera, microphone and speakers on their computer.

**Virtual:** In the context of computing, not concrete or physical. For instance, a completely virtual university does not have actual buildings but instead holds classes over the Internet.

**Virtual Classroom:** The online learning space where students and instructors interact.

**Web or World Wide Web (WWW):** A global hypertext network that is part of the Internet. It is normally viewed through a web browser.

**Web Browser:** An application used to view World Wide Web pages. Firefox and Internet Explorer are examples of web browsers.

**Web Page:** One page of a document on the World Wide Web. Each web page has its own address called a

Uniform Resource Locator (URL).

**Webinar:** An online seminar or meeting conducted over the World Wide Web.

**Website:** A location on the World Wide Web. A website usually contains multiple pages.

**Wiki:** A website that allows users to add, remove and edit and change content, typically without the need for registration. It also allows for linking among any number of pages.

**Word Processing:** An application that allows a user to create, edit and format text.