TITLE 210. STATE DEPARTMENT OF EDUCATION
CHAPTER 15. CURRICULUM AND INSTRUCTION
SUBCHAPTER 3. OKLAHOMA ACADEMIC STANDARDS
PART 23. INSTRUCTIONAL TECHNOLOGY

Proposed new content appears on pages 5 – 7.

210:15-3-183. Overview [REVOKED]

These PRIORITY ACADEMIC STUDENT SKILLS are the International Society for Technology in Education (ISTE) National Education Technology Standards for Students (NET-S), used with their permission.

210:15-3-183.1. Definitions [REVOKED]

The following words or terms, when used in this Chapter, shall have the following meaning, unless the context clearly indicates otherwise:

"Browser" means the program used to search and locate information on the World Wide Web.

"Collaborative Electronic Authoring Tools" means the tools that allow multiple authors from multiple locations simultaneously. Examples: Google™ Documents or wikis

"Digital Citizenship" means the Mike Ribble and Gerald Bailey definition of digital citizenship as the norms of appropriate and responsible behavior with regard to technology use, indicated through nine elements. The nine elements are:

 (A) **Digital Etiquette.** Electronic standards of conduct or procedure. Technology users often see this area as one of the most pressing problems when dealing with Digital Citizenship. We recognize inappropriate behavior when we see it, but before people use technology they do not learn digital etiquette (i.e., appropriate conduct). Many people feel uncomfortable talking to others about their digital etiquette. Often rules and regulations are created or the technology is simply banned to stop inappropriate use. It is not enough to create rules and policy, we must teach everyone to become responsible digital citizens in this new society.

 (B) **Digital Communication.** Electronic exchange of information. One of the significant changes within the digital revolution is a person's ability to communicate with other people. In the 19th century, forms of communication were limited. In the 21st century, communication options have exploded to offer a wide variety of choices (e.g., e-mail, cellular phones, instant messaging). The expanding digital communication options have changed everything because people are able to keep in constant communication with anyone else. Now everyone has the opportunity to communicate and collaborate with anyone from anywhere and anytime. Unfortunately, many users have not been taught how to make appropriate decisions when faced with so many different digital communication options.

 (C) **Digital Literacy.** Process of teaching and learning about technology and the use of technology. While schools have made great progress in the area of technology infusion, much remains to be done. A renewed focus must be made on what technologies must be taught as well as how it should be used. New technologies are finding their way into the work place that are not being used in

schools (e.g., videoconferencing, online sharing spaces such as wikis). In addition, workers in many different occupations need immediate information (just-in-time information). This process requires sophisticated searching and processing skills (i.e., information literacy). Learners must be taught how to learn in a digital society. In other words, learners must be taught to learn anything, anytime, anywhere. Business, military, and medicine are excellent examples of how technology is being used differently in the 21st century. As new technologies emerge, learners need to learn how to use that technology quickly and appropriately. Digital Citizenship involves educating people in a new way-these individuals need a high degree of information literacy skills.

(D)   **Digital Access.** Full electronic participation in society. Technology users need to be aware of and support electronic access for all to create a foundation for Digital Citizenship. Digital exclusion of any kind does not enhance the growth of users in an electronic society. All people should have fair access to technology no matter who they are. Places or organizations with limited connectivity need to be addressed as well. To become productive citizens, we need to be committed to equal digital access.

(E)   **Digital Commerce.** Electronic buying and selling of goods. Technology users need to understand that a large share of market economy is being done electronically. Legitimate and legal exchanges are occurring, but the buyer or seller need to be aware of the issues associated with it. The mainstream availability of Internet purchases of toys, clothing, cars, food, etc. has become commonplace to many users. At the same time, an equal amount of illegal/immoral goods and services are surfacing such as pornography and gambling. Users need to learn about how to be effective consumers in a new digital economy.

(F)   **Digital Law.** Electronic responsibility for actions and deeds. Digital law deals with the ethics of technology within a society. Unethical use manifests itself in form of theft and/or crime. Ethical use manifests itself in the form of abiding by the laws of society. Users need to understand that stealing or causing damage to other people's work, identity, or property online is a crime. There are certain rules of society that users need to be aware in an ethical society. These laws apply to anyone who works or plays online. Hacking into others information, downloading illegal music, plagiarizing, creating destructive worms, viruses or creating Trojan Horses, sending spam, or stealing anyone's identify or property is unethical.

(G)   **Digital Rights & Responsibilities.** Those freedoms extended to everyone in a digital world. Just as in the American Constitution where there is a Bill of Rights, there is a basic set of rights extended to every digital citizen. Digital citizens have the right to privacy, free speech, etc. Basic digital rights must be addressed, discussed, and understood in the digital world. With these rights also come responsibilities as well. Users must help define how the technology is to be used in an appropriate manner. In a digital society these two areas must work together for everyone to be productive.

(H)   **Digital Health & Wellness.** Physical and psychological well-being in a digital technology world. Eye safety, repetitive stress syndrome, and sound ergonomic practices are issues that need to be addressed in a new technological

~~world. Beyond the physical issues are those of the psychological issues that are becoming more prevalent such as Internet addiction. Users need to be taught that there inherent dangers of technology. Digital Citizenship includes a culture where technology users are taught how to protect themselves through education and training.~~

~~(I)~~ **~~Digital Security (self-protection).~~** ~~Electronic precautions to guarantee safety. In any society, there are individuals who steal, deface, or disrupt other people. The same is true for the digital community. It is not enough to trust other members in the community for our own safety. In our own homes, we put locks on our doors and fire alarms in our houses to provide some level of protection. The same must be true for the digital security. We need to have virus protection, backups of data, and surge control of our equipment. As responsible citizens, we must protect our information from outside forces that might cause disruption or harm.~~

~~"Digital Imaging"~~ ~~means objects created from a camera, scanner, etc.~~

~~"Digital Media"~~ ~~means digitized content that can be transmitted over the Internet or computer networks including text, graphics, audio, and video.~~

~~"Digital Storytelling"~~ ~~means some mix of computer-based images, text, audio, and/or video.~~

~~"Digital Tools"~~ ~~means any technological resource including, but not limited to, word processors, presentation tools, desktop publishers, geographical information systems, instant messaging or SMS, audio tools, video tools, mind mapping tools, graphic tools, modeling tools, time line tools, data processing, and spreadsheet tools.~~

~~"Editing"~~ ~~means content decisions including additions, deletions, and modifications of text, graphics, etc.~~

~~"Electronic Authoring Tools"~~ ~~means computer-based system that allows users to create content.~~

~~"File Types"~~ ~~mean~~

~~(A)   .pdf - portable document file (Adobe Acrobat)~~
~~(B)   .mpeg - typical music file~~
~~(C)   .xls - Microsoft Excel™ file~~
~~(D)   .dat - database file~~
~~(E)   bit/bmp - picture/clip art file~~
~~(F)   .wmv - Windows movie file~~
~~(G)   .jpeg - picture file (Most digital cameras take pictures in this format.)~~

~~"Graphical Organizers"~~ ~~means Visual representations of knowledge, concepts or ideas.~~

~~"Hyperlink"~~ ~~means embedded text directing to a web page or remote site.~~

~~"Lifelong Learning"~~ ~~means the "lifelong, voluntary, and self-motivated" pursuit of knowledge for either personal or professional reasons. As such, it not only enhances social inclusion, active citizenship, and personal development, but also competitiveness and employability.~~

~~"Mapping Software"~~ ~~means software that chart data on a map.~~

~~"Media-Rich Presentation"~~ ~~means mixed media (audio, video, text, still images, animation, video interactivity).~~

"Online Learning Community" means common place on the Internet that addresses the learning needs of its members.

"Simulation" means acting out or mimicking an actual or probable real-life condition, event, or situation to solve or explore a problem, issue, or topic.

"Streaming Media" means media compressed to be viewed on a Web site.

"Technology" means the body of knowledge available that is of use in extracting, creating, distributing, manipulating or collecting data and/or information.

"(Technology) Applications" means the technology system designed to solve a specific problem.

"Technology Systems" means the interactive and interdependent components of technology (See technology.) that combine to form a solution.

"Upload/Download" means download is moving a digital file (such as a media file or word processing file) from a server where it is stored to a local system for viewing or editing. Upload is moving a digital file from a local system to a server for storage or distribution.

"URL" means the address of a Web page.

210:15-3-184. Instructional Technology Standards

(a)   **Creativity and Innovation.** Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students will:

   (1)   apply existing knowledge to generate new ideas, products, or processes.
   (2)   create original works as a means of personal or group expression.
   (3)   use models and simulations to explore complex systems and issues.
   (4)   identify trends and forecast possibilities.

(b)   **Communication and Collaboration.** Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students will:

   (1)   interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
   (2)   communicate information and ideas effectively to multiple audiences using a variety of media and formats.
   (3)   develop cultural understanding and global awareness by engaging with learners of other cultures.
   (4)   contribute to project teams to produce original works or solve problems.

(c)   **Research and Information Fluency.** Students apply digital tools to gather, evaluate, and use information. Students will:

   (1)   plan strategies to guide inquiry.
   (2)   locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
   (3)   evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
   (4)   process data and report results.

(d)   **Critical Thinking, Problem Solving, and Decision Making.** Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students will:

   (1)   identify and define authentic problems and significant questions for investigation.
   (2)   plan and manage activities to develop a solution or complete a project.

~~(3) collect and analyze data to identify solutions and/or make informed decisions.~~
~~(4) use multiple processes and diverse perspectives to explore alternative solutions.~~
~~(e) **Digital Citizenship.** Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students will:~~
~~(1) advocate and practice safe, legal, and responsible use of information and technology.~~
~~(2) exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.~~
~~(3) demonstrate personal responsibility for lifelong learning.~~
~~(4) exhibit leadership for digital citizenship.~~
~~(f) **Technology Operations and Concepts.** Students demonstrate a sound understanding of technology concepts, systems, and operations. Students will:~~
~~(1) understand and use technology systems.~~
~~(2) select and use applications effectively and productively.~~
~~(3) troubleshoot systems and applications.~~
~~(4) transfer current knowledge to learning of new technologies.~~

(a) **Structure of the standards.** The Oklahoma Academic Standards for Instructional Technology incorporate the International Society for Technology in Education (ISTE) Standards for Students (2016). The standards are organized around seven (7) competency areas: Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, and Global Collaborator. For each of the seven (7) competency areas, four (4) specific standards are included.

(b) **Empowered Learner.** Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

(1) Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process itself to improve learning outcomes.

(2) Students build networks and customize their learning environments in ways that support the learning process.

(3) Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

(4) Students understand the fundamental concepts of technology operations; demonstrate the ability to choose, use, and troubleshoot current technologies; and are able to transfer their knowledge to explore emerging technologies.

(c) **Digital Citizen.** Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world. They act in ways that are safe, legal, and ethical.

(1) Students cultivate and manage their digital identity and reputation, and are aware of the permanence of their actions in the digital world.

(2) Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.

(3) Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

(4) Students manage their personal data to maintain digital privacy and security, and are aware of data-collection technology used to track their navigation online.

(d) **Knowledge Constructor.** Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others.

    (1) Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

    (2) Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.

    (3) Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

    (4) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories, and pursuing answers and solutions.

(e) **Innovative Designer.** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful, or imaginative solutions.

    (1) Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems.

    (2) Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

    (3) Students develop, test, and refine prototypes as part of a cyclical design process.

    (4) Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

(f) **Computational Thinker.** Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

    (1) Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

    (2) Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

    (3) Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

    (4) Students understand how automation works, and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

(g) **Creative Communicator.** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats, and digital media appropriate to their goals.

    (1) Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

    (2) Students create original works or responsibly repurpose or remix digital resources into new creations.

    (3) Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.

    (4) Students publish or present content that customizes the message and medium for their intended audiences.

(h) **Global Collaborator.** Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

    (1) Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.

(2) Students use collaborative technologies to work with others—including peers, experts, or community members—to examine issues and problems from multiple viewpoints.
(3) Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
(4) Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.

210:15-3-185. Intermediate level prior to completion of grade 8 [REVOKED]

(a) **Standard.** The student will demonstrate knowledge of basic operations and concepts.
(1) Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use.
(2) Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving.
(b) **Standard.** The student will demonstrate knowledge of social, ethical, and human issues.
(1) Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society.
(2) Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse.
(3) Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.
(c) **Standard.** The student will demonstrate knowledge of technology productivity tools.
(1) Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research.
(2) Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.
(d) **Standard.** The student will demonstrate knowledge of technology communication tools.
(1) Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.
(2) Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom.
(e) **Standard.** The student will demonstrate knowledge of technology research tools.
(1) Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research.
(2) Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.
(3) Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom.
(4) Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems.
(5) Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.

(f)   **Standard.** The student will demonstrate knowledge of technology problem-solving and decision-making tools.
   (1)   Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.
   (2)   Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.
   (3)   Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems.
   (4)   Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving.
   (5)   Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.

210:15-3-186. Advanced level prior to completion of grade 12 [REVOKED]
(a)   **Standard.** The student will demonstrate knowledge of basic operations and concepts and make informed choices among technology systems, resources, and services.
(b)   **Standard.** The student will demonstrate knowledge of social, ethical, and human issues.
   (1)   Identify capabilities and limitations of contemporary, emerging technology resources, and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs.
   (2)   Make informed choices among technology systems, resources, and services.
   (3)   Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole.
   (4)   Demonstrate and advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information.
(c)   **Standard.** The student will demonstrate knowledge of technology productivity tool.
   (1)   Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence).
   (2)   Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.
(d)   **Standard.** The student will demonstrate knowledge of technology communications tools.
   (1)   Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence).
   (2)   Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications, and productivity.
   (3)   Select and apply technology tools for research, information analysis, problem solving, and decision-making in content learning.
   (4)   Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works.
(e)   **Standard.** The student will demonstrate knowledge of technology research tools.
   (1)   Evaluate technology-based options, including distance and distributed education, for lifelong learning.

(2)   Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications, and productivity.

(3)   Select and apply technology tools for research, information analysis, problem solving, and decision-making in content learning.

(4)   Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.

(5)   Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works.

(f)   **Standard.** The student will demonstrate knowledge of technology problem-solving and decision-making tools.

(1)   Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications, and productivity.

(2)   Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.

(3)   Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works.