DRAFT Proposed Revisions

Texas Essential Knowledge and Skills

Technology Applications Middle School

Prepared by the State Board of Education TEKS Review Committees

First Draft—July 2010

These documents have been combined from grade-level team drafts and formatted for consistency and ease of review.

Proposed additions are shown in greed font with underlines and proposed deletions are shown in red font with strike throughs.

Comments in the margin provide explanations for proposed changes. The following notations were used as part of the explanations:

CRS—information added or changed to align with College Readiness Standards

ER—information added, changed, or deleted based on expert reviewer feedback

MV—multiple viewpoints from within the committee

VA—information added, changed, or deleted to increase vertical alignment

21st—information updated to 21st century technology trends, applications, and uses

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§126.12. Technology Applications ~~(Computer Literacy)~~, Grades 6. Technology Applications

(a) General requirements. Districts have the flexibility of offering technology applications ~~(computer literacy)~~ in a variety of settings~~,~~. ~~including a specific class or integrated into other subject areas.~~ Districts are encouraged to offer technology applications in all content areas. They may also be offered in a specific class while being integrated in all content areas.

(b) Introduction.

(1) The technology applications curriculum has ~~four strands: foundations, information acquisition, work in solving problems, and communication~~ six strands: creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving and decision making, digital citizenship, and technology operations and concepts.

(2) Through the study of technology applications ~~foundations technology operations and concepts, including technology-related terms, concepts, and data input strategies~~, students ~~learn to~~ make informed decisions ~~about~~ by understanding current and emerging technologies ~~and their applications. The efficient acquisition of information includes the identification of task requirements; the plan for using search strategies; and the use of technology to access, analyze, and evaluate the acquired information. By using technology as a tool that supports the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create a solution, and evaluate the results. Students communicate information in different formats and to diverse audiences. A variety of technologies will be used. Students will analyze and evaluate the results~~ which include technology systems, appropriate digital tools, and personal learning networks. As responsible digital citizens and competent researchers, students use creative and computational thinking to solve problems while developing career and college readiness skills.

(c) Knowledge and skills.

(1)~~(5)~~ ~~Information acquisition~~ Creativity and Innovation. The student ~~acquires electronic information in a variety of formats, with appropriate supervision~~ uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. The student is expected to:

(A) identify, create, and use files in various formats such as text, bitmapped ~~/~~ and vector graphics, video, and audio files;

~~(B) demonstrate the ability to access, operate, and manipulate information from secondary storage and remote devices including CD-ROM/laser discs and on-line catalogs; and~~

(B) create original works as a means of personal or group expression;

~~(C) use on-line help and other documentation.~~

Comment [A1]: **RC** Consider adding a statement about using technology terminology.

Comment [A2]: 21st – terminology updated.

Comment [A3]: Remove but use terminology in order to increase rigor in grade levels.

Comment [A4]: VA

Comment [A5]: RC

(C) explore complex systems and issues using models, simulations, and new technologies such as making predictions, modifying input and reviewing results; and

(D) analyze trends and forecast possibilities.

~~(2) Foundations. The student uses data input skills appropriate to the task. The student is expected to:~~

~~(C) use digital keyboarding standards for data input such as one space after punctuation, the use of em/en dashes, and smart quotation marks; and~~

~~(D) develop strategies for capturing digital files while conserving memory and retaining image quality.~~

(2) Communication and Collaboration. The student collaborates and communicates both locally and globally to reinforce and promote learning. The student is expected to:

(A) create personal learning networks to collaborate and publish with peers, experts, or others via current and emerging technologies, such as blogs, wikis, audio/video communication;

(B) communicate effectively to multiple audiences using a variety of media and formats; and

(C) use technical writing strategies.

(3)~~(4)~~ ~~Information acquisition~~ Research and Information Fluency. The student acquires, analyzes and manages content from digital resources ~~uses a variety of strategies to acquire information from electronic resources, with appropriate supervision~~. The student is expected to:

~~(A) use strategies to locate and acquire desired information on LANs and WANs, including the Internet, intranet, and collaborative software; and~~

(A) create a research plan to guide inquiry;

~~(B) apply appropriate electronic search strategies in the acquisition of information including keyword and Boolean search strategies.~~

(B) use various search strategies including keyword(s) and Boolean identifiers;

(C) select and evaluate digital resources for accuracy and validity; and

(D) process data and communicate results.

Comment [A6]: 21st outdated terminology.

Comment [A7]: To be included later.

Comment [A8]: CRS, ER, 21st,

Comment [A9]: VA Will be included in 2B of NETS. Include in 7th grade to correlate with 7th grade ELA TEKS. 6th – Write the steps, 8th show mastery. Reword by grade level.

Comment [A10]: CRS, 21st - appropriate supervision removed since this is a given now. These TEKS are student driven and not teacher driven, therefore, the term "appropriate supervision" should be removed. Updated to reflect college readiness standards.

Comment [A11]: 21st – terminology updated to reflect new trends and terms.

(4) Critical Thinking, Problem Solving, and Decision Making. The student makes informed decisions by applying critical thinking and problem solving skills. The student is expected to:

(A) identify and define relevant problems and significant questions for investigation;

(B) plan and manage activities to develop a solution or complete a project;

(C) collect and analyze data to identify solutions and make informed decisions;

(D) use multiple processes and diverse perspectives to explore alternative solutions;

(E) make informed decisions and support reasoning; and

(F) transfer current knowledge to the learning of newly encountered technologies.

(5)~~(3)~~ ~~Foundations~~ Digital Citizenship. The student ~~complies with the laws and examines the issues regarding the use of technology in society~~ practices safe, responsible, legal, and ethical behavior while using technology tools and resources. The student is expected to:

(A) understand and practice ~~discuss~~ copyright ownership ~~laws/issues~~ including current laws, fair use guidelines, creative commons, open source, and public domain;

(B)~~(3)(A)~~ practice ~~and model~~ ethical acquisition and standard ~~use of digital information,~~ methods for citing sources ~~using established methods~~;

(C)~~(B)~~ practice ~~demonstrate~~ safe and appropriate online behavior, personal security guidelines, ~~proper~~ digital etiquette, and ~~knowledge of~~ acceptable use of technology ~~while in an individual classroom, lab, or on the Internet and intranet~~; and

~~(D) identify the impact of technology applications on society through research, interviews, and personal observation; and~~

(D)~~(C)~~ understand ~~describe~~ the ~~consequences regarding copyright violations~~ negative impact of inappropriate technology use, including, ~~but not limited to, computer~~ online bullying and harassment, hacking, ~~computer piracy,~~ intentional virus setting, ~~and~~ invasion of privacy, and piracy such as software, music, video and other media.

~~(E) demonstrate knowledge of the relevancy of technology to future careers, life-long learning, and daily living for individuals of all ages.~~

~~(6) Information acquisition. The student evaluates the acquired electronic information. The student is expected to:~~

~~(A) determine and employ methods to evaluate the electronic information for accuracy and validity;~~

Comment [A12]: 21st

Comment [A13]: Already addressed, repetitive.

Comment [A14]: 21st, RC specificity, updating terminology

Comment [A15]: CRS moved to 1G.

~~(B) resolve information conflicts and validate information through accessing, researching, and comparing data; and~~

~~(C) demonstrate the ability to identify the source, location, media type, relevancy, and content validity of available information.~~

(6)~~(1)~~ ~~Foundations~~ Technology Operations and Concepts. ~~The~~ S~~s~~tudents demonstrate~~s knowledge and appropriate use of hardware components, software programs, and their connections~~ a thorough understanding of technology concepts, systems, and operations. The student is expected to:

(A)~~(E)~~ use current technology terminology appropriately ~~to the task~~;

~~(B) compare, contrast, and appropriately use the various input, processing, output, and primary/secondary storage devices~~;

(B) evaluate and select technology tools based on licensing, application, and support;

~~(C) demonstrate the ability to select and use software for a defined task according to quality, appropriateness, effectiveness, and efficiency~~;

(C)~~(A)~~ understand ~~demonstrate knowledge~~ and ~~appropriate~~ use ~~of~~ operating systems~~, software applications, and communication and networking components~~;

~~(D) delineate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform connectivity~~;

(D) understand and use software applications including the ability to select and use software for a defined task;

(E) understand and use hardware systems;

(F) understand troubleshooting techniques such as accessing the command prompt, restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, and modifying display properties;

(G) demonstrate effective file management strategies such as naming conventions, location, backup, hierarchy, folder structure, and file conversion;

~~(H) use terminology related to the Internet appropriately including, but not limited to, electronic mail (e-mail), Uniform Resource Locators (URLs), electronic bookmarks, local area networks (LANs), wide area networks (WANs), World Wide Web (WWW) page, and HyperText Markup Language (HTML);~~ and

(H)~~(F)~~ perform basic software application functions including~~, but not limited to,~~ opening an application ~~program~~ and creating, modifying, printing, and saving ~~documents~~ files;

~~(I) compare and contrast LANs, WANs, Internet, and intranet~~

Comment [A16]: RC Move to romanette iii above.

Comment [A17]: RC Move to romanette ii above.

Comment [A18]: Addressed in 1A

Comment [A19]: CR Include addition of "application" to show advancing rigor at 7th grade.

Comment [A20]: VA, ER

Comment [A21]: RC Combine G,H,I because this fits within 1A & addressed in introduction.

(I)~~(C)~~ explain ~~the differences between analog and digital~~ how changes in technology ~~systems and give examples of each~~ throughout history have impacted various areas of study; and

(J) explain technology relevancy as it applies to college and career readiness, life-long learning, and daily living;

(K)~~(2)(A) demonstrate proficiency in the~~ use ~~of~~ a variety of local and remote input ~~devices~~ sources such as ~~mouse/track pad,~~ keyboard, microphone, digital camera, ~~printer,~~ scanner, ~~disk/disc, modem, CD-ROM, or joystick~~ network, internet based sources, portable devices, and emerging technologies;

(L)~~(2)(B) demonstrate~~ use keyboarding ~~proficiency in~~ techniques and ~~posture~~ ergonomic strategies while building speed and accuracy;

(M)~~(7)(A) plan,~~ create, and edit ~~documents~~ files ~~created~~ with productivity tools including

(i)~~(7)(A)~~ a word process~~or~~ing document using ~~readable fonts, alignment, page setup, tabs, and ruler settings~~ digital typography standards such as page layout, font formatting, paragraph formatting, and list attributes;

(ii)~~(7)(B) create and edit~~ a spreadsheet workbook ~~documents~~ using components including all data types, chart generation, simple formulas, and basic functions ~~and chart information~~;

(iii)~~(7)(C) plan, create, and edit~~ a database~~s~~ by manipulating components including defining fields, entering data, and designing layouts appropriate for reporting; and

(iv)~~(7)(E) create a document using~~ desktop publishing ~~techniques~~ documents ~~including, but not limited to, the creation of multi-~~ with column~~s~~, ~~or multi-~~section~~s~~ ~~documents with a variety of~~ text-wrapp~~ed~~ing ~~frame~~ graphics, headers, and footers. ~~formats;~~

(N)~~(7)(D)~~ plan and create ~~demonstrate proficiency in the use of multimedia authoring programs by creating linear or~~ non-linear multimedia projects ~~incorporating text, audio, video, and graphics~~ using graphic design principles; and

(O)~~(7)(G)~~ 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.

~~(7) Solving problems. The student uses appropriate computer-based productivity tools to create and modify solutions to problems. The student is expected to:~~

~~(F) differentiate between and demonstrate the appropriate use of a variety of graphic tools found in draw and paint applications;~~

Comment [A22]: 21st Discusses how the history of technology has impacted content areas.

Comment [A23]: CR Moved from 3E for a better fit.

Comment [A24]: ER

Comment [A25]: VA

Comment [A26]: 21st – updated to show higher level thinking and more "process oriented skills" instead of "product oriented."

Comment [A27]: ON second reading, add "including" to show increasing rigor for each grade level.

Comment [A28]: VA

Comment [A29]: 21st C

(H) use interactive virtual environments, appropriate to level, such as virtual reality or simulations;

(I) use technical writing strategies to create products such as a technical instruction guide; and

(J) use foundation and enrichment curricula in the creation of products.

(8) Solving problems. The student uses research skills and electronic communication, with appropriate supervision, to create new knowledge. The student is expected to:

(A) participate with electronic communities as a learner, initiator, contributor, and teacher/mentor;

(B) complete tasks using technological collaboration such as sharing information through on-line communications;

(C) use groupware, collaborative software, and productivity tools to create products;

(D) use technology in self-directed activities by sharing products for defined audiences; and

(E) integrate acquired technology applications skills, strategies, and use of the word processor, database, spreadsheet, telecommunications, draw, paint, and utility programs into the foundation and enrichment curricula.

(9) Solving problems. The student uses technology applications to facilitate evaluation of work, both process and product. The student is expected to:

(A) design and implement procedures to track trends, set timelines, and review/evaluate progress for continual improvement in process and product; and

(B) resolve information conflicts and validate information through research and comparison of data.

(10) Communication. The student formats digital information for appropriate and effective communication. The student is expected to:

(A) use productivity tools to create effective document files for defined audiences such as slide shows, posters, multimedia presentations, newsletters, brochures, or reports;

(B) demonstrate the use of a variety of layouts in a database to communicate information appropriately including horizontal and vertical layouts;

(C) create a variety of spreadsheet layouts containing descriptive labels and page settings;

Comment [A30]: 21st – deleted because it has been covered in 2A above.

Comment [A31]: 21st – deleted because it has been covered in 2B above.

Comment [A32]: ER, 21st – covered above. This is a teacher expectation, not student expectation.

Comment [A33]: VA, ER - Split between 1D and 4B. Separated tracking trends and group/project tasks because they are different levels of thinking skills.

Comment [A34]: RC - Included in 3B, redundancy.

~~(D) demonstrate appropriate use of fonts, styles, and sizes, as well as effective use of graphics and page design to effectively communicate; and~~

~~(E) match the chart style to the data when creating and labeling charts.~~

~~(11) Communication. The student delivers the product electronically in a variety of media, with appropriate supervision. The student is expected to:~~

~~(A) publish information in a variety of ways including, but not limited to, printed copy, monitor display, Internet documents, and video;~~

~~(B) design and create interdisciplinary multimedia presentations for defined audiences including audio, video, text, and graphics; and~~

~~(C) use telecommunication tools for publishing such as Internet browsers, video conferencing, or distance learning.~~

~~(12) Communication. The student uses technology applications to facilitate evaluation of communication, both process and product. The student is expected to:~~

~~(A) design and implement procedures to track trends, set timelines, and review and evaluate the product using technology tools such as database managers, daily/monthly planners, and project management tools;~~

~~(B) determine and employ technology specifications to evaluate projects for design, content delivery, purpose, and audience, demonstrating that process and product can be evaluated using established criteria or rubrics;~~

~~(C) select representative products to be collected and stored in an electronic evaluation tool; and~~

~~(D) evaluate the product for relevance to the assignment or task.~~

§126.12. Technology Applications ~~(Computer Literacy)~~, Grades 6-8. Technology Applications

(a) General requirements. Districts have the flexibility of offering technology applications ~~(computer literacy)~~ in a variety of settings ~~, including a specific class or integrated into other subject areas~~. Districts are encouraged to offer technology applications in all content areas. They may also be offered in a specific class while being integrated in all content areas.

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~~(B) demonstrate the ability to access, operate, and manipulate information from secondary storage and remote devices including CD-ROM/laser discs and on-line catalogs; and~~

(B) create and present original works as a means of personal or group expression;

~~(C) use on-line help and other documentation.~~

(C) explore complex systems and issues using models, simulations, and new technologies such as making predictions, altering input and reviewing results; and

(D) analyze trends and forecast possibilities.

~~(2) Foundations. The student uses data input skills appropriate to the task. The student is expected to:~~

Comment [A35]: RC

Comment [A36]: 21st – terminology updated.

Comment [A37]: VA

Comment [A38]: RC

~~(C) use digital keyboarding standards for data input such as one space after punctuation, the use of em/en dashes, and smart quotation marks; and~~

Comment [A39]: 21st outdated terminology.

~~(D) develop strategies for capturing digital files while conserving memory and retaining image quality.~~

Comment [A40]: To be included later.

(2)~~(8)~~ Communication and Collaboration ~~Solving problems~~. The student ~~uses research skills and electronic communication, with appropriate supervision, to create new knowledge.~~ collaborates and communicates both locally and globally to reinforce and promote learning. The student is expected to:

~~(A) participate with electronic communities as a learner, initiator, contributor, and teacher/mentor;~~

(A) Create personal learning networks to collaborate and publish with peers, experts, or others via current and emerging technologies, such as blogs, wikis, audio/video communication;

Comment [A41]: CRS, ER, 21st,

~~(B) complete tasks using technological collaboration such as sharing information through on-line communications;~~

(B) communicate effectively to multiple audiences using a variety of media and formats; and

~~(C) use groupware, collaborative software, and productivity tools to create products;~~

Comment [A42]: 21st

(C) create products using technical writing strategies.

Comment [A43]: VA

~~(D) use technology in self-directed activities by sharing products for defined audiences; and~~

Comment [A44]: 21st

~~(E) integrate acquired technology applications skills, strategies, and use of the word processor, database, spreadsheet, telecommunications, draw, paint, and utility programs into the foundation and enrichment curricula.~~

Comment [A45]: ER, 21st – covered above. This is a teacher expectation, not student expectation.

(3)~~(4)~~ Research and Information Fluency ~~Information acquisition~~. The student acquires, analyzes and manages content from digital resources ~~uses a variety of strategies to acquire information from electronic resources, with appropriate supervision~~. The student is expected to:

Comment [A46]: CRS, 21st - appropriate supervision removed since this is a given now. These TEKS are student driven and not teacher driven, therefore, the term "appropriate supervision" should be removed. Updated to reflect college readiness standards.

~~(A) use strategies to locate and acquire desired information on LANs and WANs, including the Internet, intranet, and collaborative software; and~~

(A) create a research plan to guide inquiry;

(B) use various ~~apply appropriate electronic~~ search strategies ~~in the acquisition of information~~ including keyword(s) and Boolean identifiers ~~search strategies.~~

(C) select and evaluate digital resources for accuracy and validity; and

(D) process data and communicate results.

Comment [A47]: 21st – terminology updated to reflect new trends and terms.

(4) Critical Thinking, Problem Solving, and Decision Making. The student makes informed decisions by applying critical thinking and problem solving skills. The student is expected to:

(A) identify and define relevant problems and significant questions for investigation;

(B) plan and manage activities to develop a solution or complete a project;

(C) collect and analyze data to identify solutions and make informed decisions;

(D) use multiple processes and diverse perspectives to explore alternative solutions;

(E) make informed decisions and support reasoning; and

(F) transfer current knowledge to the learning of newly encountered technologies.

(5)~~(3)~~ Digital Citizenship ~~Foundations~~. The student ~~complies with the laws and examines the issues regarding the use of technology in society~~ practices safe, responsible, legal, and ethical behavior while using technology tools and resources. The student is expected to:

(A) understand and practice copyright ownership including current ~~discuss copyright~~ laws~~/issues~~ fair use guidelines, creative commons, open source, and public domain;

(B)~~(3)(A) and model~~ practice ethical acquisition, and ~~use~~ standard methods for ~~of digital information,~~ citing sources ~~using established methods~~;

(C)~~(B)~~ practice safe and appropriate online behavior, personal security guidelines, ~~demonstrate proper~~ digital etiquette, and ~~knowledge of~~ acceptable use of technology ~~while in an individual classroom, lab, or on the Internet and intranet~~; and

(D)~~(C)~~ understand ~~describe~~ the ~~consequences regarding copyright violations~~ negative impact of inappropriate technology use, including, ~~but not limited to, computer~~ online bullying and harassment, hacking, ~~computer piracy,~~ intentional virus setting, ~~and~~ invasion of privacy, and piracy such as software, music, video and other media.

~~(D) identify the impact of technology applications on society through research, interviews, and personal observation; and~~

~~(E) demonstrate knowledge of the relevancy of technology to future careers, life-long learning, and daily living for individuals of all ages.~~

~~(6) Information acquisition. The student evaluates the acquired electronic information. The student is expected to:~~

~~(A) determine and employ methods to evaluate the electronic information for accuracy and validity;~~

~~(B) resolve information conflicts and validate information through accessing, researching, and comparing data; and~~

~~(C) demonstrate the ability to identify the source, location, media type, relevancy, and content validity of available information.~~

(6)~~(1)~~ Technology Operations and Concepts ~~Foundations~~. ~~The~~ Sstudents demonstrate~~s~~ ~~knowledge and appropriate use of hardware components, software programs, and their connections~~ a thorough understanding of technology concepts, systems, and operations. The student is expected to:

Comment [A48]: 21st

Comment [A49]: 21st, RC specificity, updating terminology

Comment [A50]: Already addressed, repetitive.

Comment [A51]: CRS moved to 1G.

(A) use current technology terminology appropriately;

~~(B) compare, contrast, and appropriately use the various input, processing, output, and primary/secondary storage devices;~~

(B) evaluate and select technology tools based on licensing, application, and support;

~~(C) demonstrate the ability to select and use software for a defined task according to quality, appropriateness, effectiveness, and efficiency;~~

(C)~~(A)~~ understand and ~~demonstrate knowledge and appropriate~~ use ~~of~~ operating systems~~, software applications, and communication and networking components~~;

~~(D) delineate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform connectivity~~

(D) understand and use software applications including the ability to select and use software for a defined task;

~~(E) use technology terminology appropriate to the task;~~

(E) understand, and use hardware systems;

(F) understand troubleshooting techniques such as accessing the command prompt, restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, and modifying display properties;

(G) implement effective file management strategies including naming conventions, location, backup, hierarchy, folder structure, and file conversion;

~~(H) use terminology related to the Internet appropriately including, but not limited to, electronic mail (e-mail), Uniform Resource Locators (URLs), electronic bookmarks, local area networks (LANs), wide area networks (WANs), World Wide Web (WWW) page, and HyperText Markup Language (HTML); and~~

(H)~~(F)~~ perform basic software application functions including~~, but not limited to,~~ opening an application and creating, modifying, printing, and saving ~~documents~~ files;

~~(I) compare and contrast LANs, WANs, Internet, and intranet~~

(I)~~(G)~~ explain how changes in technology throughout history have impacted various areas of study ~~the differences between analog and digital technology systems and give examples of each~~; and

(J) explain technology relevancy as it applies to college and career readiness, life-long learning, and daily living;

(K)~~(2)(A) demonstrate proficiency in the~~ use ~~of~~ a variety of local and remote input ~~devices~~ sources including ~~such as mouse/track pad,~~ keyboard, microphone, digital camera, ~~printer,~~ scanner, ~~disk/discs, modem, CD-ROM, or joystick~~ network, internet based sources, portable devices, and emerging technologies;

(L)~~(2)(B)~~ use ~~demonstrate~~ keyboarding ~~proficiency in~~ techniques and ergonomic strategies ~~and posture~~ while building speed and accuracy;

~~(7) Solving problems. The student uses appropriate computer-based productivity tools to create and modify solutions to problems. The student is expected to:~~

Comment [A52]: RC Move to romanette iii above.

Comment [A53]: RC Move to romanette ii above.

Comment [A54]: CR 7th grade rigor should include…

Comment [A55]: VA, RC

Comment [A56]: CR Include addition of "application" to show advancing rigor at 7th grade.

Comment [A57]: VA, ER

Comment [A58]: RC Combine G,H,I because this fits within 1A & addressed in introduction.

Comment [A59]: 21st Discusses how the history of technology has impacted content areas.

Comment [A60]: CR Moved from 3E for a better fit.

Comment [A61]: ER – emerging technologies can include wireless devices.

Comment [A62]: VA

~~(F) differentiate between and demonstrate the appropriate use of a variety of graphic tools found in draw and paint applications;~~

~~(G) integrate two or more productivity tools such as, documents, presentations, tables, charts and graphs, graphics from paint or draw programs, and mail merge, and online resources, into a document product including, but not limited to, ;~~

~~(H) use interactive virtual environments, appropriate to level, such as virtual reality or simulations;~~

~~(I) use technical writing strategies to create products such as a technical instruction guide; and~~

~~(J) use foundation and enrichment curricula in the creation of products.~~

(M)~~(7)(A) plan,~~ create~~,~~ and edit ~~documents~~ files ~~created~~ with productivity tools including

(i)~~(7)(A)~~ a word process~~or~~ing document using digital typography standards including page layout, and font formatting, paragraph formatting and list attributes ~~readable fonts, alignment, page setup, tabs, and ruler settings~~;

(ii)~~(7)(B)~~ a ~~create and edit~~ spreadsheet workbook ~~documents~~ using ~~all~~ components including complex formulas, basic functions, data types, ~~formulas and functions,~~ and chart generation ~~information~~;

(iii)~~(7)(C)~~ a ~~plan, create, and edit~~ database~~s~~ by manipulating components including defining fields, entering data, and designing layouts appropriate for reporting; and

(iv)~~(7)(E) create a document using~~ desktop publishing ~~techniques~~ documents ~~including, but not limited to, the creation of multi-~~ with column~~s~~, ~~or multi-~~ section~~s~~ ~~documents with a variety of~~ text-wrapping ~~ed frame~~ graphics, headers, and footers ~~formats~~;

(N)~~(7)(D)~~ plan and create ~~demonstrate proficiency in the use of multimedia authoring programs by creating linear or~~ non-linear multimedia projects ~~incorporating text, audio, video, and graphics~~ using graphic design principles; and

(O) integrate two or more current and emerging technology tools such as productivity tools, multimedia files, web technologies, and portable files.

~~(9) Solving problems. The student uses technology applications to facilitate evaluation of work, both process and product.~~

~~(A) design and implement procedures to track trends, set timelines, and review/evaluate progress for continual improvement in process and product; and~~

~~(B) resolve information conflicts and validate information through research and comparison of data.~~

~~(10) Communication. The student formats digital information for appropriate and effective communication. The student is expected to:~~

Comment [A63]: 21st removed due to obsolescence and coverage under multimedia tools. May include paint/draw in multimedia when separated by grade level. Move to ISTE 4 because it is a critical thinking/problem solving skill.

Comment [A64]: Addressed in O

Comment [A65]: 21st – updated to show higher level thinking and more "process oriented skills" instead of "product oriented."

Comment [A66]: VA

Comment [A67]: VA, ER - Split between 1D and 4B. Separated tracking trends and group/project tasks because they are different levels of thinking skills.

Comment [A68]: RC - Included in 3B, redundancy.

~~(A) use productivity tools to create effective document files for defined audiences such as slide shows, posters, multimedia presentations, newsletters, brochures, or reports;~~

~~(B) demonstrate the use of a variety of layouts in a database to communicate information appropriately including horizontal and vertical layouts;~~

~~(C) create a variety of spreadsheet layouts containing descriptive labels and page settings;~~

~~(D) demonstrate appropriate use of fonts, styles, and sizes, as well as effective use of graphics and page design to effectively communicate; and~~

~~(E) match the chart style to the data when creating and labeling charts.~~

~~(11) Communication. The student delivers the product electronically in a variety of media, with appropriate supervision. The student is expected to:~~

~~(A) publish information in a variety of ways including, but not limited to, printed copy, monitor display, Internet documents, and video;~~

~~(B) design and create interdisciplinary multimedia presentations for defined audiences including audio, video, text, and graphics; and~~

~~(C) use telecommunication tools for publishing such as Internet browsers, video conferencing, or distance learning.~~

~~(12) Communication. The student uses technology applications to facilitate evaluation of communication, both process and product. The student is expected to:~~

~~(A) design and implement procedures to track trends, set timelines, and review and evaluate the product using technology tools such as database managers, daily/monthly planners, and project management tools;~~

~~(B) determine and employ technology specifications to evaluate projects for design, content delivery, purpose, and audience, demonstrating that process and product can be evaluated using established criteria or rubrics;~~

~~(C) select representative products to be collected and stored in an electronic evaluation tool; and~~

~~(D) evaluate the product for relevance to the assignment or task.~~

§126.12. Technology Applications ~~(Computer Literacy)~~, Grades ~~6~~ 8. Technology Applications

(a) General requirements. Districts have the flexibility of offering technology applications ~~(computer literacy)~~ in a variety of settings~~.~~. ~~including a specific class or integrated into other subject areas.~~ Districts are encouraged to offer technology applications in all content areas. They may also be offered in a specific class while being integrated in all content areas.

(b) Introduction.

(1) The technology applications curriculum has ~~four strands: foundations, information acquisition, work in solving problems, and communication~~ six strands: creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving and decision making, digital citizenship, and technology operations and concepts.

(2) Through the study of technology applications ~~foundations technology operations and concepts, including technology-related terms, concepts, and data input strategies~~, students ~~learn to~~ make informed decisions ~~about~~ by understanding current and emerging technologies ~~and their applications. The efficient acquisition of information includes the identification of task requirements; the plan for using search strategies; and the use of technology to access, analyze, and evaluate the acquired information. By using technology as a tool that supports the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create a solution, and evaluate the results. Students communicate information in different formats and to diverse audiences. A variety of technologies will be used. Students will analyze and evaluate the~~ results which include technology systems, appropriate digital tools, and personal learning networks. As responsible digital citizens and competent researchers, students use creative and computational thinking to solve problems while developing career and college readiness skills.

(c) Knowledge and skills.

(1)~~(5)~~ Creativity and Innovation ~~Information acquisition~~. The student ~~acquires electronic information in a variety of formats, with appropriate supervision~~ uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. The student is expected to:

(A) identify, create, and use files in various formats ~~such as~~ including text, bitmapped~~/~~ and vector graphics, ~~image,~~ video, and audio files;

~~(B) demonstrate the ability to access, operate, and manipulate information from secondary storage and remote devices including CD-ROM/laser discs and on-line catalogs; and~~

(B) create, present, and publish original works as a means of personal or group expression;

~~(C) use on-line help and other documentation.~~

(C) explore complex systems and issues using models, simulations, and new technologies such as developing hypotheses, modifying input, and analyzing results; and

(D) analyze trends and forecast possibilities.

Comment [A69]: RC Consider adding a statement about using technology terminology.

Comment [A70]: 21st – terminology updated.

Comment [A71]: VA

Comment [A72]: RC

~~(2) Foundations. The student uses data input skills appropriate to the task. The student is expected to:~~

~~(C) use digital keyboarding standards for data input such as one space after punctuation, the use of em/en dashes, and smart quotation marks; and~~

~~(D) develop strategies for capturing digital files while conserving memory and retaining image quality.~~

(2)~~(8)~~ Communication and Collaboration ~~Solving problems~~. The student ~~uses research skills and electronic communication, with appropriate supervision, to create new knowledge.~~ collaborates and communicates both locally and globally to reinforce and promote learning. The student is expected to:

~~(A) participate with electronic communities as a learner, initiator, contributor, and teacher/mentor~~;

(A) Create personal learning networks to collaborate and publish with peers, experts, or others via current and emerging technologies, such as blogs, wikis, audio/video communication;

~~(B) complete tasks using technological collaboration such as sharing information through on-line communications;~~

(B) communicate effectively to multiple audiences using a variety of media and formats; and

~~(C) use groupware, collaborative software, and productivity tools to create products;~~

(C) create products using technical writing strategies.

~~(D) use technology in self-directed activities by sharing products for defined audiences; and~~

~~(E) integrate acquired technology applications skills, strategies, and use of the word processor, database, spreadsheet, telecommunications, draw, paint, and utility programs into the foundation and enrichment curricula.~~

(3)~~(4)~~ Research and Information Fluency ~~Information acquisition~~. The student acquires, analyzes and manages content from digital ~~uses a variety of strategies to acquire information from electronic~~ resources~~, with appropriate supervision.~~ The student is expected to:

~~(A) use strategies to locate and acquire desired information on LANs and WANs, including the Internet, intranet, and collaborative software; and~~

(A) create a research plan to guide inquiry;

(B) use various ~~apply appropriate electronic~~ search strategies ~~in the acquisition of information~~ including keyword(s) and Boolean ~~search strategies.~~ identifiers;

(C) select and evaluate digital resources for accuracy and validity; and

(D) process data and communicate results.

Comment [A73]: 21st outdated terminology.

Comment [A74]: To be included later.

Comment [A75]: CRS, ER, 21st,

Comment [A76]: 21st – deleted because it has been covered in 2A above.

Comment [A77]: VA Will be included in 2B of NETS. Include in 7th grade to correlate with 7th grade ELA TEKS. 6th – Write the steps, 8th show mastery. Reword by grade level.

Comment [A78]: 21st – deleted because it has been covered in 2B above.

Comment [A79]: ER, 21st – covered above. This is a teacher expectation, not student expectation.

Comment [A80]: CRS, 21st - appropriate supervision removed since this is a given now. These TEKS are student driven and not teacher driven, therefore, the term "appropriate supervision" should be removed. Updated to reflect college readiness standards.

Comment [A81]: 21st – terminology updated to reflect new trends and terms.

(4) Critical Thinking, Problem Solving, and Decision Making. The student makes informed decisions by applying critical thinking and problem solving skills. The student is expected to:

(A) identify and define relevant problems and significant questions for investigation;

(B) plan and manage activities to develop a solution or complete a project;

(C) collect and analyze data to identify solutions and make informed decisions;

(D) use multiple processes and diverse perspectives to explore alternative solutions;

(E) make informed decisions and support reasoning; and

(F) transfer current knowledge to the learning of newly encountered technologies.

(5)~~(3)~~ Digital Citizenship ~~Foundations~~. The student ~~complies with the laws and examines the issues regarding the use of technology in society~~ practices safe, responsible, legal, and ethical behavior while using technology tools and resources. The student is expected to:

(A) understand, explain, and practice ~~discuss~~ copyright ownership including current laws~~/issues~~, fair use guidelines, creative commons, open source, and public domain;

Comment [A82]: 21st C

(B)~~(3)(A)~~ practice and explain ~~and model~~ ethical acquisition and standard methods for ~~use of digital information,~~ citing sources ~~using established methods~~;

(C)~~(B)~~ practice ~~demonstrate~~ and explain safe and appropriate online behavior, personal security guidelines, ~~proper~~ digital etiquette, and ~~knowledge of~~ acceptable use of technology; and ~~while in an individual classroom, lab, or on the Internet and intranet~~;

(D)~~(C)~~ understand and explain ~~describe~~ the ~~consequences regarding copyright violations~~ negative impact of inappropriate technology use, including, ~~but not limited to, computer~~ online bullying and harassment, hacking, ~~computer piracy,~~ intentional virus setting, ~~and~~ invasion of privacy, and piracy such as software, music, video and other media.

Comment [A83]: 21st, RC specificity, updating terminology

~~(D) identify the impact of technology applications on society through research, interviews, and personal observation; and~~

Comment [A84]: Already addressed, repetitive.

~~(E) demonstrate knowledge of the relevancy of technology to future careers, life-long learning, and daily living for individuals of all ages.~~

Comment [A85]: CRS moved to 1G.

~~(6) Information acquisition. The student evaluates the acquired electronic information. The student is expected to:~~

~~(A) determine and employ methods to evaluate the electronic information for accuracy and validity;~~

~~(B) resolve information conflicts and validate information through accessing, researching, and comparing data; and~~

~~(C) demonstrate the ability to identify the source, location, media type, relevancy, and content validity of available information.~~

(6)~~(1)~~ Technology Operations and Concepts ~~Foundations~~. The ~~s~~Students demonstrate~~s knowledge and appropriate use of hardware components, software programs, and their connections~~ a thorough understanding of technology concepts, systems, and operations. The student is expected to:

(A)~~(E)~~ use current technology terminology appropriately ~~to the task~~;

~~(B) compare, contrast, and appropriately use the various input, processing, output, and primary/secondary storage devices;~~

(B) evaluate and select technology tools based on licensing, application, and support;

~~(C) demonstrate the ability to select and use software for a defined task according to quality, appropriateness, effectiveness, and efficiency;~~

(C)~~(A)~~ understand and use ~~demonstrate knowledge and appropriate use~~ of operating systems~~, software applications, and communication and networking components~~;

~~(F)~~ delineate and make~~ understand file types, cross platforms and compatibility issues, necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform~~ connectivity;

(D) understand and use software applications including the ability to select and use software for a defined task;

(E) understand and use hardware systems;

(F) understand troubleshooting techniques including accessing the command prompt, rebooting, power issues, software compatibility, network connectivity, connecting to a remote resource, and modifying display properties;

(G) implement effective file management strategies including naming conventions, location, backup, hierarchy, folder structure, and file conversion;

~~(H) use terminology related to the Internet appropriately including, but not limited to, electronic mail (e-mail), Uniform Resource Locators (URLs), electronic bookmarks, local area networks (LANs), wide area networks (WANs), World Wide Web (WWW) page, and HyperText Markup Language (HTML);~~ and

(H)~~(F)~~ perform basic software application functions including, but not limited to, opening an application ~~program~~ and creating, modifying, printing, and saving ~~documents~~ files;

~~(I) compare and contrast LANs, WANs, Internet, and intranet~~

(I)~~(G)~~ explain how changes in technology throughout history have impacted various areas of study; ~~differences between analog and digital technology systems and give examples of each~~;

(J) explain technology relevancy as it applies to college and career readiness, life-long learning, and daily living;

(K)~~(2)(A) demonstrate proficiency in the~~ use ~~of~~ a variety of local and remote input ~~devices such as~~ sources including ~~mouse/track pad,~~ keyboard, microphone, digital camera, ~~printer,~~ scanner, ~~disk/disc, modem, CD-ROM, or joystick~~ network, internet based sources, portable devices, and emerging technologies;

(L)~~(2)(B) demonstrate~~ keyboarding ~~proficiency in~~ techniques and ergonomic strategies ~~and posture~~ while building speed and accuracy;

Comment [A86]: RC Move to romanette iii above.

Comment [A87]: RC Move to romanette ii above.

Comment [A88]: Moved to 1A

Comment [A89]: CR 7th grade rigor should include…

Comment [A90]: CR Include addition of "application" to show advancing rigor at 7th grade.

Comment [A91]: ER, VA

Comment [A92]: RC Combine G,H,I because this fits within 1A & addressed in introduction.

Comment [A93]: 21st Discusses how the history of technology has impacted content areas.

Comment [A94]: CR Moved from 3E for a better fit.

Comment [A95]: ER

Comment [A96]: VA

~~(7) Solving problems. The student uses appropriate computer-based productivity tools to create and modify solutions to problems. The student is expected to:~~

~~(F) differentiate between and demonstrate the appropriate use of a variety of graphic tools found in draw and paint applications;~~

~~(G) integrate two or more productivity tools such as, documents, presentations, tables, charts and graphs, graphics from paint or draw programs, and mail merge, and online resources, into a document product including, but not limited to,~~

(M)~~(7)(A) plan,~~ create~~,~~ and edit ~~documents~~ files ~~created~~ with productivity tools including

(i)~~(7)(A)~~ a word process~~or~~ing document using digital typography standards including page layout, font formatting, paragraph formatting, mail merge, and list attributes ~~readable fonts, alignment, page setup, tabs, and ruler settings~~;

(ii)~~(7)(B) create and edit~~ a spreadsheet workbook ~~documents~~ using components including complex formulas, advanced functions, ~~all~~ data types, ~~formulas and functions~~, and chart ~~information~~ generation; ~~all data types, formulas and functions, and chart information~~;

(iii)~~(7)(C) plan, create, and edit~~ a database~~s~~ by manipulating components including defining fields, entering data, and designing layouts appropriate for reporting; and

(iv)~~(7)(E) create a document using~~ desktop publishing ~~techniques~~ documents with ~~including, but not limited to, the creation of multi~~ column~~s~~, ~~or multi~~ section~~s~~, ~~documents with a variety of~~ text-wrapped~~ed~~ing, ~~frame formats;~~ graphics, tables, headers, and footers.

(N)~~(7)(D)~~ plan and create ~~demonstrate proficiency in the use of authoring programs by creating linear or~~ non-linear multimedia projects ~~incorporating text, audio, video, and graphics;~~ using graphic design principles; and

(O) integrate two or more current and emerging technology tools such as productivity tools, multimedia files, web technologies, and portable files.

~~(9) Solving problems. The student uses technology applications to facilitate evaluation of work, both process and product.~~

~~(A) design and implement procedures to track trends, set timelines, and review/evaluate progress for continual improvement in process and product; and~~

~~(B) resolve information conflicts and validate information through research and comparison of data.~~

~~(10) Communication. The student formats digital information for appropriate and effective communication. The student is expected to:~~

~~(A) use productivity tools to create effective document files for defined audiences such as slide shows, posters, multimedia presentations, newsletters, brochures, or reports;~~

~~(B) demonstrate the use of a variety of layouts in a database to communicate information appropriately including horizontal and vertical layouts;~~

Comment [A97]: 21st removed due to obsolescence and coverage under multimedia tools. May include paint/draw in multimedia when separated by grade level. Move to ISTE 4 because it is a critical thinking/problem solving skill.

Comment [A98]: 21st – updated to show higher level thinking and more "process oriented skills" instead of "product oriented."

Comment [A99]: VA

Comment [A100]: 21st C

Comment [A101]: VA, ER - Split between 1D and 4B. Separated tracking trends and group/project tasks because they are different levels of thinking skills.

Comment [A102]: RC - Included in 3B, redundancy.

~~(C) create a variety of spreadsheet layouts containing descriptive labels and page settings;~~

~~(D) demonstrate appropriate use of fonts, styles, and sizes, as well as effective use of graphics and page design to effectively communicate; and~~

~~(E) match the chart style to the data when creating and labeling charts.~~

~~(11) Communication. The student delivers the product electronically in a variety of media, with appropriate supervision. The student is expected to:~~

~~(A) publish information in a variety of ways including, but not limited to, printed copy, monitor display, Internet documents, and video;~~

~~(B) design and create interdisciplinary multimedia presentations for defined audiences including audio, video, text, and graphics; and~~

~~(C) use telecommunication tools for publishing such as Internet browsers, video conferencing, or distance learning.~~

~~(12) Communication. The student uses technology applications to facilitate evaluation of communication, both process and product. The student is expected to:~~

~~(A) design and implement procedures to track trends, set timelines, and review and evaluate the product using technology tools such as database managers, daily/monthly planners, and project management tools;~~

~~(B) determine and employ technology specifications to evaluate projects for design, content delivery, purpose, and audience, demonstrating that process and product can be evaluated using established criteria or rubrics;~~

~~(C) select representative products to be collected and stored in an electronic evaluation tool; and~~

~~(D) evaluate the product for relevance to the assignment or task.~~