Strand: Practical Technology Concepts									
Substrand: Processes									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
			Practical technology concepts—processes. The student engages with technology systems, concepts, and operations. The student is expected to:			Practical technology concepts—processes. The student evaluates and selects appropriate methods or techniques for an independent project and identifies and solves common hardware and software problems using troubleshooting strategies. ~~6.1 Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. The student is expected to:~~			KS for the Processes Substrand: Work group scaffolded the language for this KS in each grade level and adjusted language to better align to ISTE 1.3, CCRS II.A.3
			NEW (A) compare and contrast applications for relevance to the assigned task such as word process, spreadsheet, presentation tools ~~3 5.2.E evaluate the product for relevance to the assignment or task; and~~	NEW (A) evaluate and choose applications for relevance to the assigned task	NEW (A) identify file types for text, graphics, and multimedia files;	NEW (A) create and design files in various formats such as text, graphics, video, and audio files; ~~6.1.A identify, create, and use files in various formats such as text, raster and vector graphics, video, and audio files;~~	NEW (A) choose a variety of digital tools to create, share, and communicate digital artifacts ~~7.1.A identify, create, and use files in various formats such as text, raster and vector graphics, video, and audio files;~~	NEW (A) combine various file formats for a specific project or audience. ~~8.1.A identify, create, and use files in various formats, including text, raster and vector graphics, video, and audio files;~~	Updated and clarified language. Used a progression of skills increasing the rigor as the grade levels increase. Aligned to ISTE 1.D, CCRS II.E.3 and II.E.4, and CSTA 1.A CCRS alignment XD 1.F.1, 1.F.2, II.E.3. CSTA - Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts

Strand: Practical Technology Concepts									
Substrand: Processes									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
			NEW (B) perform software applications functions such as inserting or deleting text, inserting images, and formatting page layout and margins. ~~perform basic software application functions, including opening applications and creating, modifying, printing, and saving files~~	NEW (B) perform software applications functions such as outline options, bulleting, and numbering lists, and editing functions such as finding and replacing.	NEW (B) perform software applications functions including inserting or deleting text and images, and formatting tools or options.			NEW (B) share and seek feedback files in various formats, including text, raster and vector graphics, video, and audio files;	ISTE 1B Students build networks and customize their learning environments in ways that support the learning process.
			~~3-5.4.D evaluate technology tools applicable for solving problems~~						

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
Practical technology concepts—skills and tools. The student demonstrates knowledge and appropriate use of technology systems, concepts, and operations. The student is expected to:			Practical technology concepts—skills and tools. The student selects appropriate methods or techniques for an assigned task and identifies and solves simple hardware and software problems using common troubleshooting strategies. The student is expected to:			Practical technology concepts—skills and tools. The student leverages technology systems, concepts, and operations to produce digital artifacts. The student is expected to: ~~Technology operations and concepts. The student demonstrates a thorough understanding of technology concepts, systems, and operations. The student is expected to:~~			
NEW (A) use a variety of applications, devices, and online learning experiences or environments to engage with content ~~K-2.2.D select, store, and deliver products using a variety of media, formats, devices, and virtual environments.~~	NEW (A) choose and use a variety of applications, devices, and online learning experiences or environments to create an original product	NEW (A) use a variety of applications, devices, and online learning environments to create and share content							updated and clarified language and increased rigor; aligned to ISTE 1.D, CCRS II.E.3 and II.E.4, and CSTA 1.A

Technology Applications TEKS Review Work Group C Recommendations

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
NEW (B) identify basic computer hardware, including a variety of input and output devices, and software using accurate terminology ~~K-2.6.D use a variety of input, output, and storage devices;~~	NEW (B) describe basic computer hardware and software using accurate terminology ~~K-2.6.A use appropriate terminology regarding basic hardware, software applications, programs, networking, virtual environments, and emerging technologies;~~	NEW (B) demonstrate the purpose of basic computer hardware and software using accurate terminology	NEW (A) demonstrate an understanding of the terminology related to operating systems, network systems such as internet, intranet, wifi, and short-range wireless technology, and learning management systems ~~3-5.6.A demonstrate an understanding of technology concepts, including terminology for the use of operating systems, network systems, virtual systems, and learning systems appropriate for Grades 3-5 learning;~~	NEW (A) demonstrate an understanding of the terminology related to virtual systems such as video conferencing, augmented, and virtual reality environments	NEW (A) describe and evaluate operating systems, network systems such as internet, intranet, wifi, and short-range wireless technology, learning management systems and virtual systems and their applications.	NEW (A) apply appropriate technology terminology such as input, output, basic programming, and cloud concepts. ~~6.6.A define and use current technology terminology appropriately;~~	NEW (A) demonstrate proficiency in the use of technology terminology in projects through team collaboration and communication ~~7.6.A define and use current technology terminology appropriately;~~	NEW (A) integrate use of appropriate technology terminology in scholarly inquiry and dialogue such as classroom discussion and written samples ~~8.6.A define and use current technology terminology appropriately~~;	Work group added input/output to Kindergarten hardware standard feels that "storage" concepts are more appropriately addressed in Data strand. Limited scope of SE to hardware and software for this grade band to be developmentally appropriate; Scaffolded language. Provide more specificity to the student expectation. Edits were more grade appropriate. CSTA - Create clearly named variables that represent different data types and perform operations on their values. CSTA - Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices. Fundamentals of Comp Sci (HS course) TEKs says: The student is expected to demonstrate knowledge of the basic computer components, including a central processing unit (CPU), storage and input/output devices Building from kinder - grade 8 to build software applications and applying them to other situation. CCRS engage in scholarly inquiry and dialogue

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
NEW (C) operate a variety of developmentally appropriate digital tools and resources to perform software application functions such as opening an application and modifying, printing, and saving digital artifacts ~~K-2.6.B use appropriate digital tools and resources for storage, access, file management, collaboration, and designing solutions to problems;~~	NEW (C) operate a variety of developmentally appropriate digital tools and resources to perform software application functions such as file management, collaboration, and the creation and revision of digital artifacts	NEW (C) operate a variety of developmentally appropriate digital tools and resources to perform software application functions such as reviewing digital artifacts, creating and designing solutions to problems ~~K-2.6.C perform basic software application functions, including opening an application and creating, modifying, printing, and saving files;~~	NEW (B) identify where and how to save files such as using appropriate naming conventions and file management ~~3-5.6.B manipulate files using appropriate naming conventions; file management, including folder structures and tagging; and file conversions;~~	NEW (B) evaluate where and how to save including the use of appropriate naming conventions, file management, and folder structures	NEW (B) organize files using appropriate naming conventions including folder structures	NEW (B) identify where and how to save files such as using appropriate naming conventions and file management	NEW (B) evaluate where and how to save including the use of appropriate naming conventions, file management, and folder structures	NEW (B) organize files using appropriate naming conventions including folder structures	Work group combined K-2.6.B and K-2.6.C "Saving" is the more practical concept; including text, graphics, and multimedia files; aligns with MA 4 standards; aligns to CCRS II.C.6 File conversions can be moved to later grades. ISTE 1B, 1D CCRS: I.C.1.

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						NEW (C) select and use the appropriate platform and tools to complete a specific task or project ~~6.6.D understand and use software applications, including selecting and using software for a defined task;~~ ~~6.6.E identify, understand, and use hardware systems;~~	NEW (C) select and use the appropriate platform and tools, including selecting and using software or hardware for a defined task; ~~7.6.D understand and use software applications, including selecting and using software for a defined task;~~ ~~7.6.E identify, understand, and use hardware systems;~~	NEW (C) select and use the appropriate platform and tools, including selecting and using software or hardware for a self-identified task; ~~8.6.D understand and use software applications, including selecting and using software for a defined task;~~ ~~8.6.E identify, understand, and use hardware systems;~~	CSTA (6-8) - Design projects that combine hardware and software components to collect and exchange data. ISTE 6D Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication. II.C.6. Design and present an effective product. In grade 6, the teacher specifies the task and technique to be used. In grade 7, the teacher defines the questions and student determines the technique. In grade 8, the student determines the question.

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
NEW (D) practice ergonomically correct keyboarding techniques and developmentally appropriate hand and body positions ~~K-2.6.E use proper keyboarding techniques such as ergonomically correct hand and body positions appropriate for Kindergarten-Grade 2 learning;~~	NEW (D) practice ergonomically correct keyboarding techniques and developmentally appropriate hand and body positions	NEW (D) practice ergonomically correct keyboarding techniques and developmentally appropriate hand and body positions	NEW (C) demonstrate proper touch keyboarding techniques with accuracy and ergonomic strategies such as correct hand and body positions ~~3-5.6.E use proper touch keyboarding techniques and ergonomic strategies such as correct hand and body positions and smooth and rhythmic keystrokes.~~	NEW (C) demonstrate proper touch keyboarding techniques with speed and accuracy and ergonomic strategies such as correct hand and body positions	NEW (C) demonstrate proper touch keyboarding techniques with increasing speed and accuracy and ergonomic strategies such as correct hand and body positions				Neither CSTA nor ISTE address keyboarding, but other state standards do and the workgroup feels it is essential instruction and should not be assumed knowledge; the skills ensure that students are prepared for online testing. Removed "smooth and rhythmic keystrokes" as it was difficult to measure; focused on accuracy before speed; aligns to CCRS II.E.3 I.D.3, 1.D.4

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
NEW (E) identify, locate, and practice using keys on the keyboard including letters, numbers, and special keys such as space bar, shift, and delete ~~K-2.6.F demonstrate keyboarding techniques for operating the alphabetic, numeric, punctuation, and symbol keys appropriate for Kindergarten-Grade 2 learning; and~~	NEW (E) identify, locate, and practice using keys on the keyboard including letters, numbers, and special keys such as space bar, shift, and delete	NEW (E) identify, locate, and practice using keys on the keyboard including special keys such as function keys, punctuation, and escape, and basic keyboard shortcuts	NEW (D) identify and practice using additional keyboard or other input device shortcuts for actions such as copy/paste, undo, or closing windows	NEW (D) identify and practice using additional keyboard or other input device shortcuts for various digital tools	NEW (D) demonstrate keyboard or other input device shortcuts with fluency for various digital tools				Neither CSTA nor ISTE address keyboarding, but other state standards do, and the work group feels it is essential instruction and should not be assumed knowledge; the skills ensure that students are prepared for online testing; Work group felt the use of shortcuts and the transferability of that skill between programs and platforms is and essential skill;

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
~~K-2.6.G use the help feature online and in applications.~~			NEW (E) identify and locate the help feature in applications ~~3-5.6.D troubleshoot minor technical problems with hardware and software using available resources such as online help and knowledge bases; and~~	NEW (E) use the help feature in applications	NEW (E) identify minor technical problems with hardware and software using available resources such as the help feature	NEW (D) troubleshoot minor technical problems with hardware and software using available resources such as the help feature ~~6.6.F understand troubleshooting techniques such as restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, connecting to remote resources, and modifying display properties;~~	NEW (D) determine potential solutions to solve hardware and software problems using common troubleshooting strategies such as restarting digital tools or transferring work from one device to another ~~7.6.F understand troubleshooting techniques such as restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, connecting to remote resources, and modifying display properties;~~	NEW (D) apply common troubleshooting techniques independently seeking technical assistance as needed ~~8.6.F apply troubleshooting techniques, including restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, connecting to remote resources, and modifying display properties;~~	Work group felt the use of help tools was more developmentally appropriate beginning in grade 3 as in other states such as WV. Increase rigor of verbs and scaffolded through grade 8; aligned with ISTE 1.D about using troubleshooting technologies and CCRS 1.D.1 Moved to end point of grade 5; aligns with using help feature in grade 3-4

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						NEW (E) identify effective file management strategies such as file naming conventions, local and remote locations, backup, hierarchy, folder structure, file conversion, tags, and emerging digital organizational strategies; ~~6.6.G demonstrate effective file management strategies such as file naming conventions, location, backup, hierarchy, folder structure, file conversion, tags, labels, and emerging digital organizational strategies;~~	NEW (E) demonstrate with assistance effective file management strategies such as file naming conventions, local and remote locations, backup, hierarchy, folder structure, file conversion, tags, and emerging digital organizational strategies; ~~7.6.G demonstrate implement effective file management strategies such as file naming conventions, location, backup, hierarchy, folder structure, file conversion, tags, labels, and emerging digital organizational strategies;~~	NEW (E) implement independently effective file management strategies including file naming conventions, local and remote locations, backup, hierarchy, folder structure, file conversion, tags, and emerging digital organizational strategies ~~8.6.G implement effective file management strategies such as file naming conventions, location, backup, hierarchy, folder structure, file conversion, tags, labels, and emerging digital organizational strategies;~~	Work group differentiated verbs/rigor between grade levels; aligns with ISTE Student Standard 1.1.b--addressing customization and CCRS II.C.5. Synthesize and organize information effectively

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						NEW (F) identify a variety of local and remote input sources such as cloud architecture or local server ~~6.6.J use a variety of local and remote input sources;~~	NEW (F) use with assistance a variety of local and remote input sources such as cloud architecture or local server to collect and exchange data; ~~7.6.J use a variety of local and remote input sources;~~	NEW (F) use independently a variety of local and remote input sources such as cloud architecture or local server to collect and exchange data; ~~8.6.J use a variety of local and remote input sources;~~	Addressed previous work group's recommendations for grade level differentiation and clarity by example; aligns to 2-CS-02 and MA 6-8.CS.d
						NEW (G) demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques ~~6.6.K use keyboarding techniques and ergonomic strategies while building speed and accuracy;~~	NEW (G) demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques ~~7.6.K use keyboarding techniques and ergonomic strategies while building speed and accuracy;~~	NEW (G) demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques ~~8.6.K use keyboarding techniques and ergonomic strategies while building speed and accuracy;~~	Aligns to CCRS I.D.3 and I.D.4 and keeps keyboarding in the vertical alignment through grade 8

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						NEW (H) use productivity tools found in spread sheet, word processing, and publication applications to create digital artifacts such as reports, graphs and charts ~~6.6.L create and edit files with productivity tools, including:~~	NEW (H) use productivity tools found in spread sheet, word processing, and publication applications to create digital artifacts such as reports, graphs and charts with increasing complexity ~~7.6.L create and edit files with productivity tools, including:~~	NEW (H) use productivity tools found in spread sheet, word processing, and publication applications to create digital artifacts such as reports, graphs and charts with increasing complexity ~~8.6.L create and edit files with productivity tools, including:~~	Work group felt strongly that this student expectation and its romanettes could be significantly reduced while still keeping the productivity tools and allowing more instructional flexibility; workgroup will seek to add additional references to productivity tools to other student expectations where appropriate

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						NEW (I) use multiple technology tools with support to design and create digital projects such as digital portfolios, multimedia, a blog, or a webpage ~~6.6.M plan and create non-linear media projects using graphic design principles; and~~	NEW (I) use collaboratively multiple technology tools with support to design and create, revise or responsibly remix digital projects such as digital portfolios, multimedia, a blog, or a webpage ~~7.6.M plan and create non-linear media projects using graphic design principles~~	NEW (I) use collaboratively multiple technology tools to design and create, revise, or responsibly remix and publish digital projects such as digital portfolios, multimedia, a blog, or a webpage ~~8.6.M plan and create non-linear media projects using graphic design principles; and~~	Work group differentiated grade levels and combined previous (M) and (N); aligns with ISTE Student Standard 1.6.b, which does not mention graphic design; aligns with MA 6-8.DTC.a.4 (collaboration and examples); NY (publishing); CCRS I.E.2. Work collaboratively
						~~6.6.L.i a word processing document using digital typography standards such as page layout, font formatting, paragraph formatting, and list attributes;~~	~~7.6.L.i a word processing document using digital typography standards such as page layout, font formatting, paragraph formatting, and list attributes;~~	~~8.6.L.i a word processing document using digital typography standards such as page layout, font formatting, paragraph formatting, mail merge, and list attributes;~~	

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						~~6.6.L.ii a spreadsheet workbook using basic computational and graphic components such as basic formulas and functions, data types, and chart generation;~~	~~7.6.L.ii a spreadsheet workbook using advanced computational and graphic components such as complex formulas, basic functions, data types, and chart generation;~~	~~8.6.L.ii a spreadsheet workbook using advanced computational and graphic components such as complex formulas, advanced functions, data types, and chart generation;~~	
						~~6.6.L.iii a database by manipulating components such as entering and searching for relevant data; and~~	~~7.6.L.iii a database by manipulating components such as defining fields, entering data, and designing layouts appropriate for reporting; and~~	~~8.6.L.iii a database by manipulating components, including defining fields, entering data, and designing layouts appropriate for reporting; and~~	Databases are not as big a need as they once were; perhaps not appropriate for grade 8; data collection: databases are more appropriate in that strand
						~~6.6.L.iv a digital publication using relevant publication standards;~~	~~7.6.L.iv a digital publication using relevant publication standards;~~	~~8.6.L.iv a digital publication using relevant publication standards and graphic design principles;~~	

Strand: Practical Technology Concepts									
Substrand: Skills and Tools									
Kindergarten	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Rationale**
						~~6.6.N integrate two or more technology tools to create a new digital product.~~	~~7.6.N integrate two or more technology tools to create a new digital product.~~	~~8.6.N integrate two or more technology tools to create a new digital product.~~	