				Strand: Practical T	echnology Concepts				
				Substrand	d: Processes				
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Rationale
Kindergarten	Grade 1	Grade 2	Practical technolog engages with techn	Grade 4 y concepts—process ology systems, conce dent is expected to: NEW (A) evaluate and choose applications for relevance to the assigned task	es. The student	Practical technolog evaluates and selec for an independent common hardware troubleshooting str <del>6.1 Creativity and in thinking and innova</del>	y concepts—process cts appropriate meth project and identifie and software proble	es. The student ods or techniques es and solves ems using ent uses creative nstruct knowledge,	Rationale 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 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** Grade 4 Grade 5 Kindergarten Grade 1 Grade 2 Grade 3 Grade 6 Grade 7 Grade 8 Rationale NEW (B) perform NEW (B) perform NEW (B) perform NEW (B) share ISTE 1B software software software and seek Students build applications applications applications feedback files in networks and functions such as functions such as functions various formats, customize their including text, including inserting or outline options, learning deleting text, bulleting, and inserting or raster and vector environments in deleting text and inserting images, numbering lists, graphics, video, ways that support and formatting and editing images, and the learning and audio files; functions such as formatting tools page layout and process. finding and or options. margins. replacing. perform basic <del>software</del> application functions, including opening applications and creating, modifying, printing, and saving files 3-5.4.D evaluate technology tools applicable for solving problems

				chnology Concepts	·			
		-	Substrand: Sk	ills 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 t	tools. The student	Practical technology	concepts—skills and	d tools. The	Practical technology	<pre>concepts—skills and</pre>	tools. The student	
lemonstrates knowledge and appropriate	e use of technology	student selects appr	opriate methods or	techniques for an	leverages technolog	y systems, concepts,	and operations to	
ystems, concepts, and operations. The stu	udent is expected	assigned task and id	entifies and solves s	imple hardware	produce digital artif	acts. The student is e	xpected to:	
0:		and software proble	ms using common t	roubleshooting	Technology operation	ons and concepts. The	e student	
		strategies. The stude	ent is expected to:		demonstrates a tho	rough understanding	of technology	
					concepts, systems, a	and operations. The s	tudent is expected	
					<del>to:</del>			
variety of opplications, levices, andand use a variety of applications, devices, and online learning experiences or environments to	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

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

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

				Strand: Practical	Fechnology Concep	its			
				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	NEW (C) select	NEW (C)	CSTA (6-8) - Design
						and use the	and use the	select and use	projects that combine
						appropriate	appropriate	the	hardware and software
						platform and tools	platform and	appropriate	components to collect and
						to complete a	tools, including	platform and	exchange data.
						specific task or	selecting and	tools,	
						project	using software or	including	ISTE 6D Students choose
							hardware for a	selecting and	the appropriate platforms
						6.6.D understand	defined task;	using	and tools for meeting the
						and use software		software or	desired objectives of their
						applications,		hardware for	creation or
						including selecting	7.6.D understand	a self-	communication.
						and using	and use software	identified	II.C.6. Design and present
						software for a	applications,	task;	an effective product.
						defined task;	including selecting		In grade 6, the teacher
							and using	<del>8.6.D</del>	specifies the task and
						<del>6.6.E identify,</del>	software for a	understand	technique to be used. In
						understand, and	defined task;	and use	grade 7, the teacher
						use hardware		<del>software</del>	defines the questions and
						<del>systems;</del>	<del>7.6.E identify,</del>	applications,	student determines the
							understand, and	including	technique. In grade 8, the
							<del>use hardware</del>	selecting and	student determines the
							<del>systems;</del>	using	question.
								software for a	
								defined task;	
								8.6.E identify,	
								understand,	
								and use	
								hardware	
								<del>systems;</del>	

				Strand: Practical Te		i			
				Substrand: Sk	ills and Tools				
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Rationale
NEW (D) practice	NEW (D) practice	NEW (D) practice	NEW (C)	NEW (C)	NEW (C)				Neither CSTA nor
ergonomically	ergonomically	ergonomically	demonstrate	demonstrate	demonstrate				ISTE address
correct	correct	correct	proper touch	proper touch	proper touch				keyboarding, but
keyboarding	keyboarding	keyboarding	keyboarding	keyboarding	keyboarding				other state
techniques and	techniques and	techniques and	techniques with	techniques with	techniques with				standards do and
developmentally	developmentally	developmentally	accuracy and	speed and	increasing speed				the workgroup
appropriate hand	appropriate hand	appropriate hand	ergonomic	accuracy and	and accuracy				feels it is essential
and body positions	and body positions	and body positions	strategies such as	ergonomic	and ergonomic				instruction and
			correct hand and	strategies such as	strategies such				should not be
K-2.6.E use proper			body positions	correct hand and	as correct hand				assumed
keyboarding				body positions	and body				knowledge; the
techniques such as			3-5.6.E use proper		positions				skills ensure that
ergonomically			touch keyboarding						students are
correct hand and			techniques and						prepared for
body positions			ergonomic						online testing.
appropriate for			strategies such as						Removed "smooth
Kindergarten-			correct hand and						and rhythmic
Grade 2 learning;			body positions						keystrokes" as it
			and smooth and						was difficult to
			rhythmic						measure; focused
			keystrokes.						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,	NEW (E) identify,	NEW (E) identify,	NEW (D) identify	NEW (D) identify	NEW (D)				Neither CSTA nor				
locate, and	locate, and	locate, and	and practice using	and practice	demonstrate				ISTE address				
practice using keys	practice using keys	practice using keys	additional	using additional	keyboard or				keyboarding, but				
on the keyboard	on the keyboard	on the keyboard	keyboard or other	keyboard or	other input				other state				
including letters,	including letters,	including special	input device	other input	device shortcuts				standards do, and				
numbers, and	numbers, and	keys such as	shortcuts for	device shortcuts	with fluency for				the work group				
special keys such	special keys such	function keys,	actions such as	for various digital	various digital				feels it is essentia				
as space bar, shift,	as space bar, shift,	punctuation, and	copy/paste, undo,	tools	tools				instruction and				
and delete	and delete	escape, and basic	or closing						should not be				
		keyboard	windows						assumed				
<del>K-2.6.F</del>		shortcuts							knowledge; the				
demonstrate									skills ensure that				
<del>keyboarding</del>									students are				
techniques for									prepared for				
<del>operating the</del>									online testing;				
<del>alphabetic,</del>									Work group felt				
<del>numeric,</del>									the use of				
punctuation, and									shortcuts and the				
<del>symbol keys</del>									transferability of				
appropriate for									that skill betweer				
<del>Kindergarten-</del>									programs and				
Grade 2 learning;									platforms is and				
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 NEW (E) identify NEW (E) use the NEW (E) identify NEW (D) NEW (D) NEW (D) apply Work group felt help feature the use of help and locate the help feature in minor technical troubleshoot determine common online and in help feature in applications problems with minor technical troubleshooting tools was more potential solutions applications. applications hardware and problems with to solve hardware techniques developmentally hardware and and software appropriate software using independently 3-5.6.D available software using problems using seeking technical beginning in grade troubleshoot resources such available common assistance as 3 as in other states minor technical as the help resources such as troubleshooting needed such as WV. feature the help feature strategies such as problems with hardware and 8.6.F apply restarting digital Increase rigor of software using 6.6.F understand tools or troubleshooting verbs and techniques, available troubleshooting transferring work scaffolded through resources such as techniques such as from one device including grade 8; aligned online help and restarting with ISTE 1.D restarting to another knowledge bases; systems, checking systems, checking about using and power issues, 7.6.F understand power issues, troubleshooting troubleshooting resolving software technologies and resolving software techniques such as compatibility, CCRS 1.D.1 compatibility, verifying network verifying network restarting systems, checking connectivity, connectivity, Moved to end connecting to power issues. connecting to point of grade 5; resolving software aligns with using remote resources, remote resources, compatibility, and modifying help feature in and modifying verifying network display properties; display properties; grade 3-4 connectivity, connecting to remote resources, and modifying display properties;

				Strand: Practical Te	chnology Concepts	5			
				Substrand: Sl	cills and Tools				
indergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Rationale
indergarten	Grade 1	Grade 2	Grade 3	Substrand: Sl	kills and Tools		Grade 7NEW (E)demonstrate withassistanceeffective filemanagementstrategies such asfile namingconventions, localand remotelocations, backup,hierarchy, folderstructure, fileconversion, tags,and emergingdigitalorganizationalstrategies;7.6.G demonstrateimplementeffective filemanagementstrategies such asfile namingconventions,location, backup,hierarchy, folder	Grade 8 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	Rationale 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 Grade 6 Grade 7 Grade 8 Grade 1 Grade 2 Grade 3 Grade 4 Grade 5 Rationale Kindergarten NEW (F) use with NEW (F) identify a NEW (F) use Addressed variety of local independently a assistance a previous work and remote input variety of local variety of local group's sources such as and remote input and remote input recommendations cloud architecture sources such as sources such as for grade level or local server cloud architecture cloud architecture differentiation and clarity by example; 6.6.J use a variety or local server to or local server to of local and collect and collect and aligns to 2-CS-02 exchange data; exchange data; remote input and MA 6-8.CS.d 7.6.J use a variety 8.6.J use a variety sources; of local and of local and remote input remote input sources; sources; NEW (G) NEW (G) Aligns to CCRS NEW (G) demonstrate demonstrate I.D.3 and I.D.4 and demonstrate improvement in improvement in improvement in keeps keyboarding speed and speed and in the vertical speed and accuracy as accuracy as accuracy as alignment through grade 8 measured by measured by measured by words per minute words per minute words per minute when applying when applying when applying correct correct correct keyboarding keyboarding keyboarding techniques techniques techniques 6.6.K use 7.6.K use 8.6.K use keyboarding keyboarding **keyboarding** techniques and techniques and techniques and ergonomic ergonomic ergonomic strategies while strategies while strategies while building speed and building speed and building speed and accuracy; accuracy; accuracy;

				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	NEW (H) use	NEW (H) use	Work group felt
						productivity tools	productivity tools	productivity tools	strongly that this
						found in spread	found in spread	found in spread	student
						sheet, word	sheet, word	sheet, word	expectation and
						processing, and	processing, and	processing, and	its romanettes
						publication	publication	publication	could be
						applications to	applications to	applications to	significantly
						create digital	create digital	create digital	reduced while sti
						artifacts such as	artifacts such as	artifacts such as	keeping the
						reports, graphs	reports, graphs	reports, graphs	productivity tool
						and charts	and charts with	and charts with	and allowing more
						6.6.L create and	increasing	increasing	instructional
						edit files with	complexity	complexity	flexibility;
						productivity tools,	7.6.L create and	8.6.L create and	workgroup will
						including:	edit files with	edit files with	seek to add
							productivity tools,	productivity tools,	additional
							including:	including:	references to
									productivity tool
									to other student
									expectations
									where appropriat

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

				Strand: Practical Te		s			
				Substrand: Sl	kills and Tools				
Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Rationale
						<del>6.6.L.ii a</del>	<del>7.6.L.ii a</del>	<del>8.6.L.ii a</del>	
						spreadsheet	spreadsheet	spreadsheet	
						workbook using	workbook using	workbook using	
						<del>basic</del>	advanced	advanced	
						computational	computational	computational	
						and graphic	and graphic	and graphic	
						components such	components such	components such	
						as basic formulas	as complex	as complex	
						and functions,	formulas, basic	formulas,	
						data types, and	functions, data	advanced	
						chart generation;	types, and chart	functions, data	
							generation;	types, and chart	
								generation;	
						6.6.L.iii a database	7.6.L.iii a database	8.6.L.iii a database	Databases are no
						by manipulating	by manipulating	by manipulating	as big a need as
						components such	components such	components,	they once were;
						as entering and	as defining fields,	including defining	perhaps not
						searching for	entering data, and	fields, entering	appropriate for
						relevant data; and	designing layouts	<del>data, and</del>	grade 8; data
							appropriate for	designing layouts	collection:
							reporting; and	appropriate for	databases are
								reporting; and	more appropriate
									in that strand
						6.6.L.iv a digital	7.6.L.iv a digital	8.6.L.iv a digital	
						publication using	publication using	publication using	
						relevant	relevant	relevant	
						publication	publication	publication	
						<del>standards;</del>	<del>standards;</del>	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	7.6.N integrate	8.6.N integrate				
						two or more	<del>two or more</del>	two or more				
						technology tools	technology tools	technology tools				
						to create a new	to create a new	to create a new				
						digital product.	digital product.	digital product.				