Rule Text	TEKS Notation	Technology Applications TEKS	Connections	Science Connections	Mathematics Connections	Social Studies Connections	English Language Arts and Reading Connections	Health Connections	Fine Arts Connections	Languages Other Than English Connections	Physical Education Connections
126.9.c.1	**4.1**	***Computational thinking*-- foundations. The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.1.A	4.1.A	decompose story problems into smaller, manageable subproblems and discuss and document various solutions to the problems	**Direct alignment between student expectations**	**Science.4.1.A** ask questions and define problems based on observations or information from text, phenomena, models, or investigations **Science.4.1.B** use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions to problems	**Math.4.1.B** use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution	**SS.4.22.B** use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution	**ELAR.4.13.B** develop and follow a research plan with adult assistance				
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.1.B	4.1.B	identify patterns in story problems and make predictions based on the pattern	**Direct alignment between student expectations**	**Science.4.2.B** analyze data by identifying any significant features, patterns, or sources of error **Science.4.5.A** identify and use patterns to explain scientific phenomena or to design solutions	**Math.4.5.B** represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence		**ELAR.4.6.C** make and correct or confirm predictions using text features, characteristics of genre, and structures		**Music.4.1.D** identify and label small and large musical forms such as, abac, AB, ABA, and rondo presented aurally in simple songs and larger works		
			Use this space to identify additional connections between technology applications standards and other content standards. An illustrative example is provided.	**ELAR.4.8.A** infer basic themes supported by text evidence							
126.9.c.1.C	4.1.C	communicate design plans and solutions using a variety of options	**Direct alignment between student expectations**	**Science.4.1.B** use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions to problems	**Math.4.1.B** use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution	**SS.4.22.B** use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution	**ELAR.4.13.B** develop and follow a research plan with adult assistance				
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.1.D	4.1.D	debug algorithms (set of procedures) by identifying and removing errors	**Direct alignment between student expectations**	**Science.4.2.B** analyze data by identifying any significant features, patterns, or sources of error							
			Use this space to identify additional connections between technology applications standards and other content standards. Some illustrative examples are provided.	**Math.4.5.B** represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence							
126.9.c.2	**4.2**	***Computational thinking*-- applications. The student applies the fundamentals of computer science.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								

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126.9.c.2.A	4.2.A	use variables within a program to modify data	**Direct alignment between student expectations**	**Science.4.2.B** analyze data by identifying any significant features, patterns, or sources of error							
			Use this space to identify additional connections between technology applications standards and other content standards. An illustrative example is provided.	**Math.4.5.D** determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product							
126.9.c.2.B	4.2.B	use a design process to create programs that include sequences, loops, and conditionals to express ideas or address a problem	**Direct alignment between student expectations**						**Music.4.4.A** create rhythmic phrases through improvisation and composition **Music.4.4.B** create melodic phrases through improvisation and composition		
			Use this space to identify additional connections between technology applications standards and other content standards. Some illustrative examples are provided.	**Science.4.8.C** demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy **Math.4.9.B** describe the relationship between the availability or scarcity of resources and how that impacts cost **SS.4.19.C** analyze information by applying absolute and relative chronology through sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions						
126.9.c.3	**4.3**	***Creativity and innovation*– innovative design process. The student takes an active role in learning by using a design process to solve authentic problems for a local or global audience, using a variety of technologies.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.3.A	4.3.A	explain the importance of and demonstrate personal skills and behaviors, including problem solving and questioning, effective communication, following directions, mental agility, and metacognition, that are needed to implement a design process successfully	**Direct alignment between student expectations**	**Science.4.3.C** listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion		**SS.4.21.E** apply foundational language skills to engage in civil discourse about social studies topics, including those with multiple perspectives	**ELAR.4.1.A** listen actively, ask relevant questions to clarify information, and make pertinent comments				
			Use this space to identify additional connections between technology applications standards and other content standards. Some illustrative examples are provided.	**Math.4.1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate **PE.4.13.B** identify effective communication to enhance healthy interactions while settling disagreements							
126.9.c.3.B	4.3.B	apply an appropriate design process that includes components to improve processes and refine original products for authentic problems	**Direct alignment between student expectations**	**Science.4.1.B** use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions to problems	**Math.4.1.B** use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution	**SS.4.22.B** use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution	**ELAR.4.11.C** revise drafts to improve sentence structure and word choice by adding, deleting, combining, and rearranging ideas for coherence and clarity				
			Use this space to identify additional connections between technology applications standards and other content standards.								

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126.9.c.4	**4.4**	***Creativity and innovation*-- emerging technologies. The student demonstrates an understanding that technology is dynamic and impacts different communities.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.4.A	4.4.A	identify examples of emerging technologies	**Direct alignment between student expectations**	**Science.4.4.A** explain how scientific discoveries and innovative solutions to problems impact science and society		**SS.4.18.B** describe how scientific discoveries and innovations such as in aerospace, agriculture, energy, and technology have benefited individuals, businesses, and society in Texas					
			Use this space to identify additional connections between technology applications standards and other content standards. An illustrative example is provided.	**Art.4.3.C** connect art to career opportunities for positions such as architects, animators, cartoonists, engineers, fashion designers, film makers, graphic artists, illustrators, interior designers, photographers, and web designers							
126.9.c.5	**4.5**	***Data literacy, management, and representation*--collect data. The student uses digital strategies to collect and identify data.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.5.A	4.5.A	classify numerical and non-numerical data	**Direct alignment between student expectations**	**Science.4.2.B** analyze data by identifying any significant features, patterns, or sources of error	**Math.4.1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	**SS.4.19.D** organize and interpret information in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps					
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.5.B	4.5.B	identify and collect data by using various search strategies, including two or more keywords within specific parameters	**Direct alignment between student expectations**				**ELAR.4.13.C** identify and gather relevant information from a variety of sources				
			Use this space to identify additional connections between technology applications standards and other content standards. Some illustrative examples are provided.	**Science.4.9.A** collect and analyze data to identify sequences and predict patterns of change in seasons such as change in temperature and length of daylight **SS.4.19.A** differentiate between, locate, and use valid primary and secondary sources such as technology; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about Texas **Art.4.3.D** investigate connections of visual art concepts to other disciplines **Music.4.5.D** examine the relationships between music and interdisciplinary concepts						
126.9.c.6	**4.6**	***Data literacy, management, and representation* -- organize, manage, and analyze data. The student uses data to answer questions.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								

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126.9.c.6.A	4.6.A	use digital tools to transform and make inferences about data to answer a question	**Direct alignment between student expectations**	**Science.4.2.B** analyze data by identifying any significant features, patterns, or sources of error	**Math.4.8.A** summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals						
			Use this space to identify additional connections between technology applications standards and other content standards. Some illustrative examples are provided.	**Science.4.1.F** construct appropriate graphic organizers used to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect **SS.4.19.C** analyze information by applying absolute and relative chronology through sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions						
126.9.c.7	**4.7**	***Data literacy, management, and representation*--communicate and publish results. The student communicates data through the use of digital tools to inform an audience.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.7.A	4.7.A	use digital tools to communicate results of an inquiry to inform an intended audience	**Direct alignment between student expectations**	**Science.4.3.B** communicate explanations and solutions individually and collaboratively in a variety of settings and formats	**Math.4.1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate **Math.4.1.G** display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	**SS.4.19.G** develop and communicate a claim and supporting evidence visually, orally, or in writing related to a social studies topic	**ELAR.4.13.H** use an appropriate mode of delivery, whether written, oral, or multimodal, to present results		**Art.4.2.C** produce drawings; paintings; prints; sculpture, including modeled forms; and other art forms such as ceramics, fiber art, constructions, mixed media, installation art, digital art and media, and photographic imagery using a variety of art media and materials		
			Use this space to identify additional connections between technology applications standards and other content standards. Some illustrative examples are provided.	**Science.4.1.F** construct appropriate graphic organizers used to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect **ELAR.4.1.C** express an opinion supported by accurate information, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively						
126.9.c.8	**4.8**	***Digital citizenship*- -social interactions. The student understands different styles of digital communication and that a student's actions online can have a long-term impact.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.8.A	4.8.A	describe how information retained online creates a permanent digital footprint	**Direct alignment between student expectations**								
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.8.B	4.8.B	describe appropriate digital etiquette for various forms of digital communication such as text, email, and online chat	**Direct alignment between student expectations**	**Science.4.3.C** listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion	Math.4.1.D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	**SS.4.21.E** apply foundational language skills to engage in civil discourse about social studies topics, including those with multiple perspectives	**ELAR.4.1.A** listen actively, ask relevant questions to clarify information, and make pertinent comments	**Health.4.13.A** differentiate between appropriate and inappropriate ways to communicate in digital and online environments			
			Use this space to identify additional connections between technology applications standards and other content standards.								

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126.9.c.8.C	4.8.C	demonstrate appropriate digital etiquette for various forms of digital collaboration such as shared documents, video conferencing, and other platforms	**Direct alignment between student expectations**	**Science.4.3.C** listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion		**SS.4.21.E** apply foundational language skills to engage in civil discourse about social studies topics, including those with multiple perspectives	**ELAR.4.1.A** listen actively, ask relevant questions to clarify information, and make pertinent comments **ELAR.4.1.D** work collaboratively with others to develop a plan of shared responsibilities	**Health.4.13.A** differentiate between appropriate and inappropriate ways to communicate in digital and online environments			
			Use this space to identify additional connections between technology applications standards and other content standards. An illustrative example is provided.	Math.4.1.D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate							
126.9.c.9	**4.9**	***Digital citizenship*** **--ethics and laws. The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.9.A	4.9.A	demonstrate adherence to local acceptable use policy (AUP) and explain the importance of responsible and ethical technology use	**Direct alignment between student expectations**					**Health.4.13.A** differentiate between appropriate and inappropriate ways to communicate in digital and online environments			
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.9.B	4.9.B	describe the rights and responsibilities of a creator, define copyright law, and explain how copyright law applies to creative work	**Direct alignment between student expectations**				**ELAR.4.13.F** recognize the difference between paraphrasing and plagiarism when using source materials				
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.9.C	4.9.C	create citations for digital forms of media with assistance	**Direct alignment between student expectations**				**ELAR.4.13.F** recognize the difference between paraphrasing and plagiarism when using source materials **ELAR.4.13.G** develop a bibliography				
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.10.A	4.10.A	demonstrate account safety, including creating a strong password and logging off devices, and explain the importance of these practices	**Direct alignment between student expectations**								

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			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.10.B	4.10.B	identify and discuss types of data collection tools such as cookies, pop-ups, smart devices, and unsecured networks and explain why it is important to maintain digital privacy	**Direct alignment between student expectations**					**Health.4.13.B** explain what information is appropriate to share and who it is appropriate to share information with in digital and online environments			
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.10.C	4.10.C	discuss and explain how to respond to cyberbullying, including advocating for self and others	**Direct alignment between student expectations**					**Health.4.13.C** discuss the consequences of cyberbullying and inappropriate digital and online communication in relation to home and school environments			
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.11	**4.11**	***Practical technology concepts* –processes. The student engages with technology systems, concepts, and operations.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.11.A	4.11.A	evaluate and choose applications for relevance to an assigned task	**Direct alignment between student expectations**	**Science.4.1.F** construct appropriate graphic organizers to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect	**Math.4.1.G** display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	**SS.4.19.D** organize and interpret information in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps	**ELAR.4.13.H** use an appropriate mode of delivery, whether written, oral, or multimodal, to present results				
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.11.B	4.11.B	perform software application functions such as outline options, bulleting, and numbering lists, and perform editing functions such as finding and replacing	**Direct alignment between student expectations**	**Science.4.1.F** construct appropriate graphic organizers to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect	**Math.4.1.G** display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	**SS.4.19.D** organize and interpret information in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps	**ELAR.4.11.C** revise drafts to improve sentence structure and word choice by adding, deleting, combining, and rearranging ideas for coherence and clarity **ELAR.4.11.D** edit drafts using standard English conventions				
			Use this space to identify additional connections between technology applications standards and other content standards.								

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126.9.c.12	**4.12**	***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.**	**A knowledge and skills statement is a broad statement of what students must know and be able to do.**								
126.9.c.12.A	4.12.A	communicate an understanding of terminology related to virtual systems such as video conferencing, augmented reality, and virtual reality environments	**Direct alignment between student expectations**								
			Use this space to identify additional connections between technology applications standards and other content standards. An illustrative example is provided.	**Science.4.3.B** communicate explanations and solutions individually and collaboratively in a variety of settings and formats							
126.9.c.12.B	4.12.B	evaluate where and how to save, including the use of appropriate naming conventions and effective file management strategies and folder structures	**Direct alignment between student expectations**								
			Use this space to identify additional connections between technology applications standards and other content standards. An illustrative example is provided.	**Art.4.4.C** compile collections of personal artworks for purposes of self-assessment or exhibition such as physical artworks, electronic images, sketchbooks, or portfolios							
126.9.c.12.C	4.12.C	demonstrate proper touch keyboarding techniques with speed and accuracy and ergonomic strategies such as correct hand and body positions	**Direct alignment between student expectations**								
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.12.D	4.12.D	identify and practice using cross-curricular symbols or other input device shortcuts on a keyboard	**Direct alignment between student expectations**	**Science.4.6.A** classify and describe matter using observable physical properties, including temperature, mass, magnetism, relative density (the ability to sink or float in water), and physical state (solid, liquid, gas)	**Math.4.1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate						
			Use this space to identify additional connections between technology applications standards and other content standards.								
126.9.c.12.E	4.12.E	use troubleshooting strategies to solve minor technical problems with hardware and software such as restarting software or rebooting hardware	**Direct alignment between student expectations**								

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			Use this space to identify additional connections between technology applications standards and other content standards.								