


Legend

•	The standard is clearly addressed by program activities.	
-	This standard potentially could be addressed as part of a <i>FIRST</i> ® program either by actions that the coach or teacher takes when working with the students or by conditions established by the program.	

Topic	Number	Standard	Discover	Explore	Challenge
Kindergarten					
Algorithms & Programming	K.AP.1	The student will apply computational thinking to identify patterns and sort items into categories based on an attribute.	•		
	K.AP.1.a	Identify attributes of a set of objects.	-		
	K.AP.1.b	Compare two objects and list attributes they have in common.	-		
	K.AP.1.c	Sort and classify concrete objects based on one attribute.	-		
	K.AP.2	The student will plan and implement algorithms that include sequential order.			
	K.AP.2.a	Identify tasks that are completed using sequential step-by-step instructions.	-		
	K.AP.2.b	Recall and state thoughts, ideas, and stories in the form of sequential steps.	-		
	K.AP.2.c	Create a design document to illustrate thoughts, ideas, and stories in a sequential manner.	-		
	K.AP.2.d	Create and test a sequential algorithm emphasizing beginning, middle, and end.	-		
	K.AP.2.e	Create and test a sequential algorithm to accomplish a predetermined task.	-		
Computing Systems	K.CSY.1	The student will identify the purpose and components of a computing device.			
	K.CSY.1.a	Identify and locate parts of a computing device, including sensors.			
	K.CSY.1.b	Describe the function of common components in a computing device.			
	K.CSY.1.c	Identify different types of computing devices with screens.			
	K.CSY.1.d	Identify tasks and activities at home and at school that use screens.			
	K.CSY.1.e	Demonstrate proper use of computing devices.			
	K.CSY.2	The student will identify when a computing device might not work as expected.			
	K.CSY.2.a	Identify a problem with a computing device when it is not working as expected.			
	K.CSY.2.b	Explain what to do when a computing device is not working as expected.			
Cybersecurity	K.CYB.1	The student will demonstrate safe and responsible use of computing technologies.			
	K.CYB.1.a	Identify safe and responsible uses of computing technologies based on the school rules and acceptable use policy (AUP).			
	K.CYB.1.b	Demonstrate safe and responsible uses of computing technologies.			
	K.CYB.1.c	Communicate the process(es) for reporting behaviors that do not comply with school rules or acceptable use policy.			
	K.CYB.2	The student will describe the importance of protecting personal information online.			
	K.CYB.2.a	Describe what personal information should be shared and not shared.			
	K.CYB.2.b	Determine to whom personal information should be shared.			
Data & Analysis	K.DA.1	The student will gather and record data with or without a computing device.			
	K.DA.1.a	Discuss the importance of data.			
	K.DA.1.b	Identify numeric and non-numeric data.	-		
	K.DA.1.c	Record data and communicate possible patterns.	-		

Topic	Number	Standard	Discover	Explore	Challenge
Networks and the Internet	K.DA.2	The student will create representations of data to make predictions and draw conclusions.	-		
	K.DA.2.a	Create tables, object graphs, picture graphs, and/or models.	-		
	K.DA.2.b	Describe the information from a given data visualization.	-		
	K.DA.2.c	Use data to answer questions, make predictions, and draw conclusions.	-		
	K.IC.1	The student will identify and discuss how computing technologies impact people's lives.			
	K.IC.1.a	List computing technologies found in the classroom, home, and the community.			
	K.IC.1.b	Identify how computing technologies are used in daily tasks.			
	K.IC.1.c	Discuss healthy habits for using computing technologies.			
	K.IC.2	The student will discuss and describe how different careers use computing technologies.	-		
	K.IC.2.a	Describe how computing technologies are used in various careers.	-		
	K.IC.2.b	Discuss the advantages of using computing technologies in different careers.	-		
	K.IC.2.c	Identify local jobs that utilize computer technologies.	-		
	K.NI.1	The student will describe how people can communicate with others by connected computing devices and the Internet.			
	K.NI.1.a	Identify ways to communicate with others using connected computing devices and the Internet.			
	K.NI.1.b	Describe the benefits of communicating with others using connected computing devices and the Internet.			
Grade 1					
Algorithms & Programming	1.AP.1	The student will apply computational thinking by sorting items into categories based on multiple attributes and create patterns.	-		
	1.AP.1.a	Describe attributes of a set of objects.	-		
	1.AP.1.b	List the attributes a set of objects have in common.	-		
	1.AP.1.c	Sort and classify concrete objects based on multiple attributes.	-		
	1.AP.1.d	Create repeating and increasing patterns.	-		
	1.AP.2	The student will plan and implement algorithms that include the use of sequence and an event based on a predetermined task.	-		
	1.AP.2.a	Plan and create a design document that illustrates thoughts, ideas, and stories in a sequential manner.	-		
	1.AP.2.b	Construct step-by-step instructions that include decision-making and repetition.	-		
	1.AP.2.c	Identify and explain the role of events that are used in an algorithm.	-		
	1.AP.2.d	Test algorithms that are sequential and contain an event.	-		
	1.AP.3	The student will use the iterative design process to construct, test, and debug algorithms that include sequencing and an event.	-		
	1.AP.3.a	Discuss and describe the concept of debugging.			
	1.AP.3.b	Analyze and explain the results of an algorithm.			
	1.AP.3.c	Revise and improve an algorithm to produce desired outcomes.			
Computing Systems	1.CSY.1	The student will describe how computing components work together to create a computing system.			
	1.CSY.1.a	Identify and define hardware, software, and computing systems.			
	1.CSY.1.b	Identify common components of computing systems in different types of computing devices.			
	1.CSY.1.c	Describe how hardware and software work together to form a computing system.			
	1.CSY.2	The student will use accurate terminology to describe when a computing system might not work as expected.			
	1.CSY.2.a	Identify and describe a problem with a device or computing system when it does not work as expected.			
	1.CSY.2.b	Propose a solution to simple hardware or software issues.			

Topic	Number	Standard	Discover	Explore	Challenge
Cybersecurity	1.CYB.1	The student will demonstrate safe and responsible use of computing technologies.			
	1.CYB.1.a	Describe safe and responsible uses of computing technologies based on the school rules and acceptable use policy (AUP).			
	1.CYB.1.b	Classify appropriate and inappropriate uses of technology at school or at home.			
	1.CYB.1.c	Explain the consequences of inappropriate uses of computing technologies.			
	1.CYB.1.d	Discuss the process for reporting inappropriate technology use at school or home.			
	1.CYB.1.e	Demonstrate safe and responsible behaviors when using computing technologies and online communication.			
	1.CYB.2	The student will discuss the importance of using a password to protect private information.			
	1.CYB.2.a	Describe the purpose of usernames and passwords.			
	1.CYB.2.b	Discuss how passwords are private information and are used to protect the privacy of information.			
Data & Analysis	1.DA.1	The student will explore how data can be stored and retrieved from various computing devices.			
	1.DA.1.a	Identify data formats used for various purposes, including audio, images, text, and video.			
	1.DA.1.b	Explore and identify computing devices that collect, store, and/or display data.			
	1.DA.2	The student will create representations of data to make predictions and draw conclusions.	-		
	1.DA.2.a	Collect and organize data with or without a computing device.	-		
	1.DA.2.b	Create tables, object graphs, picture graphs, and models using abstraction.	-		
	1.DA.2.c	Identify patterns and describe trends in data visualizations of various formats.	-		
	1.DA.2.d	Use data to answer questions, draw conclusions, and make predictions.	-		
Impacts of Computing Networks and the Internet	1.IC.1	The student will describe how computing technologies impact daily tasks and communication.			
	1.IC.1.a	Determine when tasks should be completed with or without computing devices.			
	1.IC.1.b	Describe how computing devices are used in communication.			
	1.IC.1.c	Describe healthy habits for using computing technologies.			
	1.IC.2	The student will describe tasks and activities that use screens and categorize them based on their use.			
	1.IC.2.a	Identify daily routines and activities that can be completed with or without screens.			
	1.IC.2.b	Classify the different uses of screen time as learning, entertainment, or communication.			
	1.IC.3	The student will compare and contrast ways people complete tasks with and without computing technologies.			
	1.IC.3.a	Identify tasks that can be completed with and without computing technologies.			
	1.IC.3.b	Discuss advantages and disadvantages of using and not using computing technologies.			
	1.IC.3.c	Describe how the appropriate use of computing technologies can improve efficiency.			
	1.IC.3.d	List computing technologies used in various careers.			
	1.NI.1	The student will explain that computing devices and the use of the Internet allow people the ability to gather information and connect with others.			
	1.NI.1.a	Describe how the Internet can be used to gather information.			
	1.NI.1.b	Explain ways people communicate using computing devices and the Internet.			
Grade 2					
Algorithms & Programming	2.AP.1	The student will apply computational thinking to identify patterns, and design algorithms to compare and contrast objects based on attributes.		•	
	2.AP.1.a	Compare and contrast multiple ways to sort a set of objects		•	
	2.AP.1.b	Create a table of features to organize objects.		-	
	2.AP.1.c	Design an algorithm to sort objects into categories based on multiple attributes.		-	
	2.AP.2	The student will plan and implement algorithms that consists of events and loops using a block-based programming language.		•	
	2.AP.2.a	Plan and create a design document to guide the construction of a program using plain language or pseudocode.		•	
	2.AP.2.b	Identify a section of repeated actions within an algorithm and replace it with a loop.		•	

Topic	Number	Standard	Discover	Explore	Challenge
	2.AP.2.c	Construct step-by-step instructions that include events and repetition.		●	
	2.AP.3	The student will use the iterative design process to create, test, and debug a program containing events and loops in a block-based programming tool.		●	
	2.AP.3.a	Define program.		●	
	2.AP.3.b	Read and interpret a program expressed in a block-based programming language.		●	
	2.AP.3.c	Analyze and describe the results of a program.		●	
	2.AP.3.d	Create and test a program that uses events and loops.		●	
	2.AP.3.e	Revise and improve a program to produce desired outcomes.		●	
Computing Systems	2.CSY.1	The student will describe the characteristics of computing systems including hardware, software, input, and output.		●	
	2.CSY.1.a	Describe how hardware and software work together to accomplish a task.		●	
	2.CSY.1.b	Define and categorize components as inputs and outputs.		-	
	2.CSY.1.c	Describe how a computing system receives input and provides output.		-	
	2.CSY.1.d	Discuss how computers use binary to communicate and process information.		-	
	2.CSY.2	The student will demonstrate an understanding of how to troubleshoot simple hardware and software problems that may occur during use.		●	
	2.CSY.2.a	Propose solutions to simple hardware and software issues.		●	
2.CSY.2.b	Use appropriate steps to perform simple troubleshooting tasks.		●		
Cybersecurity	2.CYB.1	The student will model safe and responsible behaviors when using information and computing technologies.			
	2.CYB.1.a	Explain the need for safe and responsible uses of computing technologies.			
	2.CYB.1.b	Create a flowchart to illustrate the process for reporting inappropriate use of technology at school or at home.			
	2.CYB.1.c	Demonstrate and model safe and responsible behaviors when using computing technologies and online communication.			
	2.CYB.2	The student will explain the importance of using passwords to protect private information.			
	2.CYB.2.a	Identify and classify passwords as strong or weak.			
	2.CYB.2.b	Explain how a strong password helps protect the privacy of information.			
Data & Analysis	2.CYB.2.c	Explain the risk of sharing passwords.			
	2.DA.1	The student will analyze data to make decisions with or without a computing device.		●	
	2.DA.1.a	Collect and record numeric and non-numeric data and describe possible patterns.		●	
	2.DA.1.b	Create questions that can and cannot be answered by the data.		●	
	2.DA.1.c	Analyze data to draw conclusions and make decisions.		●	
	2.DA.2	The student will manipulate data, create representations, and evaluate data to solve a problem.		●	
	2.DA.2.a	Collect and record numeric and non-numeric data and describe possible patterns.		●	
	2.DA.2.b	Analyze data visualizations to draw conclusions.		●	
	2.DA.2.c	Propose and evaluate a solution to a problem or question based on data and/or data visualization.		●	
Impacts of Computing	2.IC.1	The student will examine the positive and negative impacts of how using computing technologies has changed the way people live, work, and interact.			
	2.IC.1.a	Identify current uses of computing/emerging technologies and discuss how they impact society.			
	2.IC.1.b	Compare and contrast appropriate and inappropriate online behaviors that apply in the physical environment and the online environment.			
	2.IC.1.c	Model healthy habits for using computing technologies.			
	2.IC.2	The student will explain the need to balance screen time and other activities.			
	2.IC.2.a	Discuss appropriate times and places for screen use.			
	2.IC.2.b	List and describe alternatives to screen time.			
	2.IC.3	The student will explain how computing technologies have an impact on the workforce.		●	
	2.IC.3.a	Explain how computing technology is used in various careers.		●	
	2.IC.3.b	Identify skills needed for careers that use computing technologies.		●	
2.IC.3.c	Discuss how computing technologies have changed the workplace.		●		

Topic	Number	Standard	Discover	Explore	Challenge
Networks and the Internet	2.NI.1	The student will demonstrate the use of the Internet in gathering information to accomplish a task.		•	
	2.NI.1.a	Explore ways information is organized and shared on the Internet.		•	
	2.NI.1.b	Gather information from the Internet.		•	
	2.NI.1.c	Summarize collected information using own words.		•	
Grade 3					
Algorithms & Programming	3.AP.1	The student will apply computational thinking to design algorithms to extend patterns, processes, or components of a problem.		•	
	3.AP.1.a	Identify a pattern in an algorithm, process, or a problem.		•	
	3.AP.1.b	Decompose a problem or task into a subset of smaller problems.		•	
	3.AP.1.c	Design an algorithm to extend either a pattern, process, or component of a problem.		•	
	3.AP.2	The student will plan and implement algorithms that consist of events and conditional control structures using a block-based programming language.		•	
	3.AP.2.a	Describe the concept of a conditional control structure.		-	
	3.AP.2.b	Create a design document to plan an algorithm using plain language, pseudocode, or diagrams.		•	
	3.AP.3	The student will use the iterative design process to create, test, and debug programs containing events, loops, and conditional structures in a block-based programming tool.		•	
	3.AP.3.a	Create and test programs that consist of events, loops, and conditional structures.		•	
	3.AP.3.b	Analyze and describe program results to assess validity of outcome.		•	
	3.AP.3.c	Revise and improve programs to resolve errors or produce desired outcome.		•	
Computing Systems	3.CSY.1	The student will model how computing devices within a computing system work.		-	
	3.CSY.1.a	Describe the role of a processor in a computing system.		-	
	3.CSY.1.b	Explain the relationship between the inputs, processors, and outputs.		-	
	3.CSY.1.c	Discuss various types of input data a computer can accept and use.			
	3.CSY.1.d	Model how a computing system works including input and output, processors, and sensors.		-	
	3.CSY.2	The student will use accurate terminology when troubleshooting problems when a computing system is not working as expected.		•	
	3.CSY.2.a	Identify common troubleshooting strategies used to address a variety of hardware and software problems.		•	
	3.CSY.2.b	Explain and apply troubleshooting strategies related to simple hardware and software problems.		•	
Cybersecurity	3.CYB.1	The student will apply safe practices to protect private information.			
	3.CYB.1.a	Identify and distinguish personal information that should be private.			
	3.CYB.1.b	Describe the importance of using a strong password.			
	3.CYB.1.c	Create and use strong passwords to protect private information.			
	3.CYB.2	The student will identify the relationship between passwords and security risk.			
	3.CYB.2.a	Describe how authentication and authorization protect private information.			
	3.CYB.2.b	Identify multiple authentication methods.			
	3.CYB.2.c	Discuss the security risk posed by not having a strong password.			
	3.CYB.3	The student will define and explain cybersecurity.			
	3.CYB.3.a	Define cybersecurity.			
	3.CYB.3.b	Research and identify problems and consequences related to inappropriate use of computing devices and networks.			
	3.CYB.3.c	Model safe and responsible behaviors when using computing technologies and online communication.			
	3.DA.1	The student will gather, store, and organize data to evaluate trends and identify patterns using a computing device.		•	
Data and Analysis	3.DA.1.a	Formulate questions that require the collection or acquisition of data.		•	
	3.DA.1.b	Gather, organize, sort, and store data.		•	
	3.DA.1.c	Examine a labeled dataset to identify potential problems within the data.		-	
	3.DA.1.d	Discuss how data discrepancies or problems impact predictions and results.		-	

Topic	Number	Standard	Discover	Explore	Challenge
	3.DA.1.e	Draw conclusions and make predictions based on observed data.		●	
	3.DA.2	The student will create and evaluate data representations and conclusions.		-	
	3.DA.2.a	Create charts and graphs based on data collection.		-	
	3.DA.2.b	Analyze data to identify patterns, draw conclusions, and make predictions.		-	
	3.DA.3	The student will create models that can represent a physical object or process.		●	
	3.DA.3.a	Create a model to represent a physical object or process.		●	
	3.DA.3.b	Identify how computing devices are used to create models.			
	3.DA.3.c	Discuss the advantages and disadvantages of using computing devices to create models.			
Impacts of Computing	3.IC.1	The student will identify and examine the positive and negative impacts of the prevalence of computing technologies.			
	3.IC.1.a	Identify computing technologies that have changed the world.			
	3.IC.1.b	Examine and explain how computing technologies influence and are influenced by culture.			
	3.IC.1.c	Identify social and ethical issues related to the use of computing technologies.			
	3.IC.2	The student will discuss and describe strategies to manage screen time.			
	3.IC.2.a	Define and describe screen time.			
	3.IC.2.b	Explain the importance of responsible screen time management.			
	3.IC.2.c	Discuss how screen time choices affect one's personal health and interactions with others.			
	3.IC.3	The student will identify and describe computing technology careers and their impact on society.		●	
	3.IC.3.a	Research computing technology careers.		●	
	3.IC.3.b	Describe the impact careers in computing technology have on society.		●	
	3.IC.4	The student will demonstrate how to use information created by others with permission.		●	
Networks and the Internet	3.IC.4.a	Discuss copyright, piracy, and plagiarism.			
	3.IC.4.b	Demonstrate how to use information created by others.		●	
	3.NI.1	The student will describe computing networks.			
	3.NI.1.a	Differentiate between a network and the Internet.			
	3.NI.1.b	Identify the components of a computing network.			
	3.NI.1.c	Describe how a computing device connects to a network.			
	3.NI.1.d	Identify ways networks are used to transmit information.			
Grade 4					
Algorithms & Programming	4.AP.1	The student will apply computational thinking to identify patterns and design algorithms to compare and contrast multiple algorithms used for the same task.		●	●
	4.AP.1.a	Decompose an algorithm, process, or problem into a subset of smaller problems.		●	●
	4.AP.1.b	Identify multiple algorithms for the same task.		●	●
	4.AP.1.c	Describe patterns within multiple algorithms.		●	●
	4.AP.1.d	Determine which algorithm is most effective for a given task.		●	●
	4.AP.2	The student will plan and implement algorithms that consist of sequencing, loops, variables, user input, and conditional control structures using a block based programming language.		●	●
	4.AP.2.a	Identify user input and its role in improving a program.		●	●
	4.AP.2.b	Describe the concept of a variable.		●	●
	4.AP.2.c	Read and explain a design document to trace and predict an algorithm using plain language, pseudocode, or diagrams.		●	●
	4.AP.2.d	Create a design document to plan an algorithm using plain language, pseudocode, or diagrams.		●	●
	4.AP.2.e	Write programs that initialize, assign values to, name, and modify variables.		-	-
	4.AP.3	The student will use the iterative design process to create, test, and debug programs containing sequencing, loops, variables, user inputs, and conditional control structures in a block-based programming tool.		●	●
	4.AP.3.a	Create and test programs that consist of sequencing, loops, variables, user inputs, and conditional control structures.		●	●
	4.AP.3.b	Create and use variables to store and process data.		●	●
	4.AP.3.c	Trace and predict the value of variables that change over the course of the program's runtime.		●	●

Topic	Number	Standard	Discover	Explore	Challenge
Computing Systems	4.AP.3.d	Analyze and describe program results to assess validity of outcomes.		•	•
	4.AP.3.e	Revise and improve programs to resolve errors or produce desired outcomes.		•	•
	4.CSY.1	The student will model how a computing system works to accomplish a task.		•	•
	4.CSY.1.a	Describe how computing systems perceive the world through sensors and other inputs.		•	•
	4.CSY.1.b	Compare and contrast how humans and computers process information from inputs.			
	4.CSY.1.c	Explain how computing devices may be used to classify and organize input.		•	•
	4.CSY.1.d	Diagram and describe a simple computing system indicating processors, inputs, and outputs.		•	•
	4.CSY.2	The student will apply troubleshooting strategies when a computing system is not working as intended.		•	•
	4.CSY.2.a	Identify hardware, software, and connectivity problems using accurate terminology.		•	•
	4.CSY.2.b	Apply troubleshooting strategies to address hardware, software, and connectivity problems.		•	•
	4.CSY.3	The student will describe the learning process of humans and computers.			
	4.CSY.3.a	Compare and contrast how humans and computing technologies collect, store, and process data.			
	4.CSY.3.b	Identify similarities and differences on how humans and computing technologies infer and extract meaning from data.			
	4.CSY.3.c	Define machine learning and identify machine learning approaches: supervised, unsupervised, and reinforcement learning.			
Cybersecurity	4.CYB.1	The student will examine the impacts of appropriate and inappropriate use of computing technologies.			
	4.CYB.1.a	Examine and explain scenarios for appropriate and inappropriate use of computing technologies.			
	4.CYB.1.b	Develop possible solutions involving inappropriate use of computing technologies.			
	4.CYB.2	The student will identify and investigate best practices to safeguard information shared online and through online platforms.			
	4.CYB.2.a	Classify personal, private, and public information.			
	4.CYB.2.b	Research and evaluate tradeoffs of sharing information.			
	4.CYB.2.c	Investigate and communicate best practices to limit unauthorized access to information on a computing device.			
	4.CYB.2.d	Demonstrate proper use and protection of personal passwords.			
	4.CYB.2.e	List methods used to safeguard online information.			
	4.CYB.3	The student will examine how information is shared online and explain the importance of cybersecurity.			
	4.CYB.3.a	Investigate multiple ways people share information online.		•	•
	4.CYB.3.b	Determine and describe when information should be shared and to whom it should be shared.		•	•
	4.CYB.3.c	Describe how personal information can be collected and shared online.			
	4.CYB.3.d	Explain the importance of cybersecurity.			
Data and Analysis	4.DA.1	The student will identify the appropriate type of data needed to solve a problem or answer a question.		•	•
	4.DA.1.a	Analyze a problem to determine the appropriate type of data needed.		•	•
	4.DA.1.b	Evaluate the reliability of data sources.		•	•
	4.DA.1.c	Use numeric values to represent non-numeric ideas to include binary, American Standard Code for Information Interchange (ASCII), and RGB values.			
	4.DA.1.d	Collect, store, clean, and organize data for analysis and to prepare visualizations.		•	•
	4.DA.2	The student will create and evaluate data representations to make predictions and conclusions.		•	•
	4.DA.2.a	Formulate questions that require the collection or acquisition of data.		•	•
	4.DA.2.b	Collect data to create charts and graphs.		•	•
	4.DA.2.c	Recognize and analyze patterns and relationships within data sets.		•	•
	4.DA.2.d	Analyze visual representations to make predictions and draw conclusions.		•	•
	4.DA.3	The student will create a computational model that represents attributes and behaviors associated with a concept.			
	4.DA.3.a	Examine models of physical objects and processes.			
	4.DA.3.b	Create a computational model that reflects the attributes and behaviors associated with a concept.			
	4.DA.3.c	Explain how a computer model illustrates a given concept.			

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Impacts of Computing	4.IC.1	The student will identify and examine the positive and negative impacts of the prevalence of computing technologies.			
	4.IC.1.a	Identify computing technologies that have changed Virginia's economy.			
	4.IC.1.b	Examine and explain how computing technologies influence and are influenced by culture.			
	4.IC.1.c	Identify social and ethical issues related to computing devices and networks.			
	4.IC.2	The student will describe the impact of screen time on relationships at home and at school.			
	4.IC.2.a	Describe the impact of excessive screen time on maintaining friendships and family dynamics.			
	4.IC.2.b	Explain how playing video games and the use of social media can impact relationships and personal health.			
	4.IC.3	The student will examine the impact of computing technologies in the workforce.		•	•
	4.IC.3.a	Research and analyze the skills needed for careers in computing technology fields.		•	•
	4.IC.3.b	Examine the impacts of diversity and inclusivity in computing technology fields.		•	•
	4.IC.4	The student will describe the importance of copyrights and intellectual property rights.			
	4.IC.4.a	Demonstrate an understanding of copyright and the fair use of information.		•	•
	4.IC.4.b	Explain how intellectual property can be protected.			
Networks and the Internet	4.IC.4.c	Give proper attribution to the original author of digital and online content.		•	•
	4.NI.1	The student will identify the interrelationship between computing devices and a computing network.			
	4.NI.1.a	Define client and server.			
	4.NI.1.b	Describe how packets are used to transmit information on a network.			
	4.NI.1.c	Describe factors that may affect the speed of data transmission.			
	4.NI.1.d	Differentiate between networking tasks that require Internet access and tasks that do not require Internet access.			
	4.NI.1.e	Model how computing devices in a network transmit and receive information.			
Grade 5					
Algorithms & Programming	5.AP.1	The student will apply computational thinking to identify patterns, make use of decomposition to break down problems or processes into sub-components, and design algorithms.			•
	5.AP.1.a	Identify patterns and repeated steps in an algorithm, problem, or process.			•
	5.AP.1.b	Decompose a problem or process into a subset of smaller problems or groups of sequential instructions.			•
	5.AP.1.c	Abstract relevant information to identify essential details.			•
	5.AP.1.d	Design an algorithm to solve a problem.			•
	5.AP.2	The student will plan and implement algorithms that consist of sequencing, loops, variables, user input, and nested conditional control structures using a block-based programming language.			•
	5.AP.2.a	Describe the concept of nested conditional control structure.			•
	5.AP.2.b	Create a design document to trace and predict an algorithm using plain language, pseudocode, or diagrams.			•
	5.AP.2.c	Read, write, and interpret nested conditional control structures: "if-else" and "if else; if-else" statements.			•
	5.AP.3	The student will use the iterative design process to create, test, and debug programs containing sequencing, loops, variables, user inputs, nested conditional control structures, and two-way branching conditional control structures in a block-based programming tool.			•
	5.AP.3.a	Use accurate terminology to describe and explain the iterative design process.			•
	5.AP.3.b	Create and test programs that consist of sequencing, loops, variables, user inputs, nested conditional control structures, and two-way branching conditional control structures.			•
	5.AP.3.c	Trace and predict outcomes of programs.			•
	5.AP.3.d	Analyze and describe program results to assess validity of outcomes.			•
	5.AP.3.e	Revise and improve programs to resolve errors or produce desired outcomes.			•
Computing Systems	5.CSY.1	The student will explain how computing systems are used to collect and exchange data.			-
	5.CSY.1.a	Identify and explain how computing systems store data representations, including images and sound.			-
	5.CSY.1.b	Describe the role of processing speed and storage capacity when collecting and exchanging data.			
	5.CSY.2	The student will describe an automated decision-making process employed by a computing system.			
	5.CSY.2.a	Explore decision automation and how it is used.			-

Topic	Number	Standard	Discover	Explore	Challenge
	5.CSY.2.b	List outcomes of a process based on automated decisions.			-
	5.CSY.3	The student will evaluate and implement troubleshooting strategies when a computing system is not operational.			•
	5.CSY.3.a	Identify and use troubleshooting protocols to resolve hardware, software, and connectivity issues.			•
	5.CSY.3.b	Apply prior troubleshooting practices to new problems as they arise.			•
Cybersecurity	5.CYB.1	The student will identify ways to limit unauthorized access on computing devices.			
	5.CYB.1.a	Define virus, malware, and phishing.			
	5.CYB.1.b	Explain how viruses and malware can put personal information at risk.			
	5.CYB.1.c	Describe the role of human interactions in social engineering attacks.			
	5.CYB.1.d	Identify ways to protect personal and private information when using a computing device and the Internet.			
	5.CYB.1.e	Explain the importance of updating software.			•
	5.CYB.2	The student will explain how cybersecurity policies and laws are designed to protect individuals.			
	5.CYB.2.a	Explain the importance of policies and laws related to online use of computing devices and the Internet.			
	5.CYB.2.b	Research and discuss current cybersecurity policies and laws that protect individuals.			
	5.CYB.2.c	Explain legal consequences for inappropriate use of computing technologies.			
Data and Analysis	5.DA.1	The student will collect data or use data sets to solve a problem or investigate a topic.			-
	5.DA.1.a	Identify accurate ways data can be collected.			-
	5.DA.1.b	Evaluate the reliability of the data source.			-
	5.DA.1.c	Organize data based on similarities or patterns.			-
	5.DA.1.d	Compare and contrast various data elements.			-
	5.DA.2	The student will create multiple data representations to make predictions and conclusions.			•
	5.DA.2.a	Formulate questions that require the collection or acquisition of data.			•
	5.DA.2.b	Collect data to use in creating charts, graphs, and models.			•
	5.DA.2.c	Analyze data as evidence to draw conclusions and make predictions.			•
	5.DA.2.d	Propose solutions to problems or questions based on data analysis.			•
Impacts of Computing	5.DA.3	The student will explain the significance of training data in machine learning.			
	5.DA.3.a	Compare how training data is utilized in supervised, unsupervised and reinforcement learning.			
	5.DA.3.b	Explain how training data is used to make classification predictions.			
	5.DA.3.c	Discuss the need and significance of diverse, inclusive, and large datasets.			•
	5.IC.1	The student will analyze the impact of inappropriate use of computing technologies.			
	5.IC.1.a	Predict consequences for inappropriate uses of computing technologies.			
	5.IC.1.b	Describe how technology-related problems can be avoided or prevented.			
	5.IC.1.c	Develop solutions for a scenario involving inappropriate use of computing technologies.			
	5.IC.2	The student will explain the potential impact of excessive screen time on academic performance.			
	5.IC.2.a	Analyze data to determine the impact of screen time on academic performance.			
	5.IC.2.b	Describe how academic behaviors that lead to academic success are impacted by daily screen time.			
	5.IC.2.c	Differentiate usage of screen time that benefit and hinder academic performance.			
	5.IC.3	The student will identify the impact of computing technologies on the workforce, culture, and global society.			
	5.IC.3.a	Research and analyze computing technology careers in global society.			
	5.IC.3.b	Examine the impacts of diversity and inclusivity in computing technology fields globally.			
	5.IC.3.c	Explore the impact of emerging technologies on workforce, culture, and global society.			•
	5.IC.4	The student will observe and examine intellectual property rights when considering the use of open-source licenses and copyrights.			-
	5.IC.4.a	Distinguish between open-source licenses and copyrights.			-
	5.IC.4.b	Research risks associated with inappropriate use of various digital information sources.			-
	5.IC.4.c	Describe and use strategies to protect online digital content and resources.			
	5.IC.5	The student will examine the effects of social interactions due to computing technologies.			

Topic	Number	Standard	Discover	Explore	Challenge
Networks and the Internet	5.IC.5.a	List and explain how advances in computing technologies impact communication and collaboration.			-
	5.IC.5.b	Describe how computing technologies can be designed to engage and interact with users including those with diverse needs.			-
	5.IC.5.c	Evaluate activities conducted in the physical and online environments.			
	5.IC.5.d	Create an artifact that illustrates a solution to address the need or want of a user.			•
	5.NI.1	The student will identify and describe cloud computing.			
	5.NI.1.a	Define cloud computing.			
	5.NI.1.b	List examples of cloud computing.			
	5.NI.1.c	List the advantages and disadvantages of cloud computing.			
	5.NI.1.d	Identify safe practices and potential security risks when using cloud computing.			
Grade 6					
Algorithms & Programming	6.AP.1	The student will apply computational thinking to identify patterns, make use of decomposition to break down problems or processes into sub-components, and design algorithms.			•
	6.AP.1.a	Identify patterns and repeated steps in an algorithm, problem, or process.			•
	6.AP.1.b	Decompose an algorithm, problem, or process into sub-components.			•
	6.AP.1.c	Abstract relevant information to identify essential details.			•
	6.AP.1.d	Design algorithms using abstraction to accomplish a task or express a computational process.			•
	6.AP.2	The student will plan and implement algorithms that include conditional control structures and collection of numeric data using a block-based or text based tool.			•
	6.AP.2.a	Create a decision tree diagram to illustrate the decision-making process.			-
	6.AP.2.b	Read and write programs that initialize Boolean, integer, and decimal number variables.			-
	6.AP.2.c	Read and write programs that collect numeric data from users.			-
	6.AP.2.d	Read and write programs that contain nested conditional control structures.			-
	6.AP.2.e	Predict the results of logic expressions that use Boolean operators: and, or, and not; including expressions that use relational expressions as one or more operands.			-
	6.AP.3	The student will use the iterative design process to create, test, and debug programs using a block-based or text-based programming language.			•
	6.AP.3.a	Create and test programs that uses multiple conditional control structures.			•
	6.AP.3.b	Incorporate existing code, media, or libraries into original programs.			•
	6.AP.3.c	Trace and predict outcomes of programs.			•
	6.AP.3.d	Analyze and describe program results to assess validity of outcomes.			-
	6.AP.3.e	Analyze the outcomes of programs to identify logic and syntax errors.			-
	6.AP.3.f	Incorporate feedback from others to refine program.			•
	6.AP.3.g	Revise and improve programs to resolve errors and produce desired outcomes.			•
	6.AP.4	The student will demonstrate proper attribution when incorporating ideas and works of others.			•
Computing Systems	6.AP.4.a	Identify and give proper attribution of information and assets from the Internet and other sources.			•
	6.CSY.1	The student will define and explain application software and operating systems of a computing device within a computing system.			-
	6.CSY.1.a	Define and describe the functions of an operating system and application software.			-
	6.CSY.1.b	List advantages and limitations of application software and operating systems based on the needs of the user.			-
	6.CSY.2	The student will identify and explain hardware, software, and connectivity problems and troubleshooting solutions.			•
	6.CSY.2.a	Identify and explain hardware, software, and connectivity problems and solutions with accurate terminology.			•
	6.CSY.2.b	Identify resources for troubleshooting hardware, software, and connectivity related problems.			•
	6.CSY.3	The student will identify and describe Artificial Intelligence (AI).			
	6.CSY.3.a	Define artificial intelligence and identify the characteristics of artificial intelligence.			
	6.CSY.3.b	Describe how AI technologies generate information or automate decision and how people interact			

Topic	Number	Standard	Discover	Explore	Challenge
	6.CSY.3.c	with AI technologies.			
		Define algorithmic bias and explain its consequences on AI technologies and systems.			
	6.CYB.1	The student will evaluate the risks and benefits associated with sharing personal and public resources or artifacts.			-
	6.CYB.1.a	Identify and explain the difference between personal and public information.			
	6.CYB.1.b	Discuss the consequences of sharing personal and confidential information online.			
	6.CYB.1.c	Evaluate risks and benefits associated with sharing information online.			
	6.CYB.2	The student will investigate various usage agreements designed to protect individuals.			
	6.CYB.2.a	Identify laws governing privacy with computing devices and emerging technologies.			
	6.CYB.2.b	Investigate and describe common components of usage agreements.			
Cybersecurity	6.CYB.2.c	Identify user and company protections in a usage agreement.			
	6.DA.1	The student will utilize computational tools to collect and organize data.			•
	6.DA.1.a	Select and use appropriate computational tools to collect data.			•
	6.DA.1.b	Organize data to make it easier to understand and use.			•
	6.DA.1.c	Clean data to remove and correct errors.			•
	6.DA.1.d	Analyze data sources for accuracy and reliability.			•
	6.DA.2	The student will utilize computational tools to visualize and evaluate data.			•
	6.DA.2.a	Identify different types of visual representations of data.			•
	6.DA.2.b	Compare various visual representations and identify when each should be used.			•
	6.DA.2.c	Create charts, graphs, models, and simulations to visualize data.			•
	6.DA.2.d	Describe and synthesize information from a visual representation of data.			•
	6.DA.3	The student will make predictions and draw conclusions from data visualizations.			•
	6.DA.3.a	Visualize data using appropriate graphs, charts, and data visualization techniques to enhance understanding and communicate findings effectively.			•
	6.DA.3.b	Use computational tools to analyze patterns within data sets and identify trends.			•
	6.DA.3.c	Draw conclusions and make predictions based on the analysis and interpretation of the data visualization.			•
	6.DA.3.d	Utilize simulations and models to formulate, refine, and test hypotheses.			-
	6.DA.4	The student will identify ways people curate and provide training data.			-
	6.DA.4.a	Identify and list ways people provide data that is used as training data.			-
	6.DA.4.b	Discuss the role of human intervention in curating training data.			-
	6.DA.4.c	Identify and describe the effect training data has on the accuracy of artificial intelligence systems.			
Impacts of Computing	6.IC.1	The student will assess the impact of computing technologies on local society.			
	6.IC.1.a	Explain how computing impacts innovation and describe the development of new computing technologies in communication, entertainment, and business.			-
	6.IC.1.b	Discuss how computing technologies have influenced various industries and sectors locally.			-
	6.IC.1.c	Research simple and complex problems that computing systems can be used to solve.			-
	6.IC.1.d	Analyze the implications of emerging technologies and potential real-world impact in the local community.			-
	6.IC.2	The student will analyze the impact of screen time on physical and mental health.			
	6.IC.2.a	Analyze and describe the impact of excessive technology usage may have on one's physical health.			
	6.IC.2.b	Examine the impact of blue light on sleep patterns and regulations.			
	6.IC.2.c	Propose strategies that provide alternatives of technology usage to promote physical activity.			
	6.IC.2.d	Discuss the potential impact the use of social media may have on self-identity and mental health.			
	6.IC.2.e	Define cyberbullying and its impact on one's health and well-being.			
	6.IC.2.f	Discuss the possible effects of cyberbullying.			
	6.IC.2.g	Identify ways to report illegal or psychologically maladaptive online behavior.			
	6.IC.3	The student will explore career pathways and identify how computer science and computational thinking practices align with these pathways.			
	6.IC.3.a	Investigate a career of interest and determine how computer science and computational thinking practices are used in the chosen career.			

Topic	Number	Standard	Discover	Explore	Challenge
Networks and the Internet	6.IC.4	The student will identify copyrighted and licensed software material.			
	6.IC.4.a	Identify the role of software licenses, including open-source, and why they are used.			
	6.IC.4.b	Compare and contrast the positives and negatives of various software licenses.			
	6.IC.5	The student will describe the impacts of computing network architecture, including the role of the Internet in society.			
	6.IC.5.a	Discuss ethical issues and laws related to accessibility, censorship, privacy, access, and safety while using the Internet.			
	6.IC.5.b	Explain the role broadband connectivity has in social life, culture, and global economy.			
	6.IC.6	The student will investigate and analyze the impact of the progression and advancement of AI technologies on industries.			
	6.IC.6.a	Discuss the type of industries that may be impacted by the use and integration of Artificial Intelligence (AI).			
	6.IC.6.b	Compare and contrast the evolving nature of work across diverse industries because of the progression and advancement of Artificial Intelligence.			
	6.NI.1	The student will outline the advantages and disadvantages of transmitting information over the Internet, including speed, reliability, cost, and security.			
	6.NI.1.a	Explain the role of the Internet in social life, culture, and the economy.			
	6.NI.1.b	Explain data transfer and the impact of connectivity speed when data is going from one device to another.			
	6.NI.1.c	Compare the speed and reliability of various data transmission media.			
	6.NI.1.d	Describe the advantages and disadvantages of transporting information over the Internet.			
Grade 7					
Algorithms & Programming	7.AP.1	The student will apply computational thinking to design programs to accomplish a task as a means of creative expression or scientific exploration.			•
	7.AP.1.a	Identify patterns and repeated steps in an algorithm, problem, or process.			•
	7.AP.1.b	Decompose an algorithm, problem, or process into sub-components.			•
	7.AP.1.c	Abstract relevant information to identify essential details.			•
	7.AP.1.d	Contrast various algorithms to solve reasoning problems when accomplishing a task.			•
	7.AP.2	The student will plan and implement algorithms that include sequencing, loops, variables, user input, conditional control structures, and functions using a block-based or text-based programming tool.			•
	7.AP.2.a	Describe the concept of functions for use in a computer program.			•
	7.AP.2.b	Plan an algorithm using plain language, pseudocode, or diagrams.			•
	7.AP.2.c	Read and write programs that collect and use numeric and text data from users.			-
	7.AP.2.d	Read and write programs that contain nested conditionals and nested loops.			•
	7.AP.3	The student will use the iterative design process to create, test, and debug programs using a block-based or text-based programming language.			•
	7.AP.3.a	Create and test programs that contain multiple control structures.			•
	7.AP.3.b	Trace and predict outcomes of programs.			•
	7.AP.3.c	Analyze the outcomes of programs to identify logic and syntax errors.			•
Computing Systems	7.AP.3.d	Analyze and describe the results of a program to assess validity of outcomes.			•
	7.AP.3.e	Revise and improve an algorithm to resolve errors or produce desired outcomes.			•
	7.AP.4	The student will apply proper attribution when incorporating other sources into original work.			•
	7.AP.4.a	Apply proper methods of attribution when using work from the Internet and other sources.			•
	7.AP.4.b	Incorporate information or assets from the Internet into a program with proper attribution.			•
	7.CSY.1	The student will design projects that use computing devices to collect and exchange data.			•
	7.CSY.1.a	Apply project management skills to distribute tasks and maintain project timeline.			•
	7.CSY.1.b	Generate ideas combining hardware and software components that can be used to collect and exchange data.			•
	7.CSY.1.c	Describe how hardware and software can be used together to collect and exchange data.			•
	7.CSY.1.d	Evaluate the usability of hardware and software to collect and exchange data.			•
	7.CSY.1.e	Select the hardware and software components for project designs by considering factors such as functionality, cost, size, speed, accessibility, and aesthetics.			•
	7.CSY.2	The student will apply computational thinking to troubleshoot and document hardware and software-related problems.			•

Topic	Number	Standard	Discover	Explore	Challenge
Cybersecurity	7.CSY.2.a	Apply systematic processes to resolve hardware, software, and connectivity related problems.			●
	7.CSY.2.b	Compile and record successful methods used to resolve problems for common hardware, software, and connectivity-related problems.			●
	7.CYB.1	The student will differentiate physical and digital security measures that protect electronic information.			
	7.CYB.1.a	Compare and contrast physical and digital security measures.			
	7.CYB.1.b	Research and synthesize the tradeoffs between usability and security.			
	7.CYB.1.c	Identify common threats and vulnerabilities associated with Internet use and Internet-based systems.			
	7.CYB.1.d	Identify potential solutions to address common threats and vulnerabilities.			
	7.DA.1	The student will utilize computational tools to visualize and evaluate data to draw conclusions and make predictions.			
	7.DA.1.a	Develop computational models that simulate real-world phenomena, considering relevant variables and relationships.			-
	7.DA.1.b	Refine and modify computational models based on observed data and feedback, ensuring alignment with empirical evidence.			-
Data & Analysis	7.DA.1.c	Analyze patterns and trends within observed data, comparing them with the predictions made by computational models.			-
	7.DA.1.d	Evaluate the effectiveness and accuracy of computational models in capturing and explaining the observed data.			-
	7.DA.2	The student will explain the process and application of computational thinking in machine learning.			-
	7.DA.2.a	Explain how supervised, unsupervised, and/or reinforcement learning methods utilize decomposition, pattern recognition, abstraction, and algorithms to learn from and make decisions.			
	7.DA.2.b	Explore neural networks and its role in machine learning and artificial intelligence.			
Impacts of Computing	7.IC.1	The student will assess the national and global impact of computing technologies.			-
	7.IC.1.a	Discuss specific examples of how computing technologies have influenced various national and global industries and sectors.			-
	7.IC.1.b	Analyze the implications of emerging technologies and potential real-world impact nationally and globally.			-
	7.IC.1.c	Evaluate the environmental impact of computing technologies nationally and globally.			-
	7.IC.2	The student will describe and explain the impact of screen time on interactions with others.			
	7.IC.2.a	Describe the positive and negative impact of social media on socialization.			
	7.IC.2.b	Research the type of data collected on social media and online platforms that monitor social interactions.			
	7.IC.2.c	Describe and explain the evolution of screen time and the impact it has had on social interactions.			
	7.IC.2.d	Create a social media usage plan that demonstrates safe practices, meaningful use, and a balanced approach.			
	7.IC.3	The student will identify individual preferences, skillset, and experiences and determine how these relate to a chosen computer science career field.			●
	7.IC.3.a	Use a career interest assessment to identify and categorize preferences, skillsets, and experiences.			●
	7.IC.3.b	Evaluate and connect personal skillsets, interests, talents, and values to a computer science career.			●
	7.IC.4	The student will identify and apply strategies to prevent personal and public works from being pirated and plagiarized.			●
	7.IC.4.a	Discuss and describe intellectual property protections.			●
	7.IC.4.b	Research and list safeguards used to prevent intellectual property infringement.			
	7.IC.5	The student will evaluate the effect of Artificial Intelligence (AI) in various professions.			
	7.IC.5.a	Research AI integration in various professions and evaluate its impact on the job market and society.			
	7.IC.5.b	Examine and analyze the impact on job creation and changes in employment needs based on the use of AI.			
	7.IC.5.c	Evaluate and explain the benefits and drawbacks of the implementation of AI technologies in various professions.			

Topic	Number	Standard	Discover	Explore	Challenge
Networks & the Internet	7.NI.1	The student will describe and explain why protocols are essential in data transmission.			
	7.NI.1.a	Define packet, router, and protocol.			
	7.NI.1.b	Describe the process of sending a file through a network.			
	7.NI.1.c	Explain the role of Internet Protocol (IP) addresses in transmitting information.			
	7.NI.1.d	Explain how packets ensure reliable communication among computing devices.			
	7.NI.1.e	Model how data is transmitted over networks and the Internet.			
Grade 8					
Algorithms & Programming	8.AP.1	The student will apply computational thinking to construct programs to accomplish a task as a means of creative expression or scientific exploration.			•
	8.AP.1.a	Identify patterns and repeated steps in an algorithm, problem, or process.			•
	8.AP.1.b	Decompose an algorithm, problem, or process into sub-components.			•
	8.AP.1.c	Abstract relevant information to identify essential details.			•
	8.AP.1.d	Use pseudocode, decision trees, or flowcharts to illustrate complex problems as algorithms.			•
	8.AP.2	The student will plan and implement algorithms that include sequencing, loops, variables, user input, conditional control structures, functions, and various data types.			•
	8.AP.2.a	Describe the concept of input and output of various data types for use in a computer program.			•
	8.AP.2.b	Plan an algorithm using plain language, pseudocode, or diagrams.			•
	8.AP.2.c	Write and test algorithms expressed using block-based or text-based programming languages.			•
	8.AP.3	The student will use the iterative design process to create, test, and debug programs using a block-based or text-based programming language.			•
	8.AP.3.a	Create and test programs that contain multiple control structures.			•
	8.AP.3.b	Trace and predict outcomes of programs.			•
	8.AP.3.c	Analyze the outcomes of programs to identify logic and syntax errors.			•
	8.AP.3.d	Analyze and describe the results of a program to assess validity of outcomes.			•
	8.AP.3.e	Revise and improve an algorithm to resolve errors or produce desired outcomes.			•
	8.AP.4	The student will incorporate work from others into programs and projects.			•
	8.AP.4.a	Explain the role of Creative Commons licensing for the use and modification or “remixing” of information.			
	8.AP.4.b	Utilize Creative Commons assets in a programming project.			
	8.AP.4.c	Use and remix code from other projects within a programming project and provide proper attribution.			•
Computing Systems	8.CSY.1	The student will recommend and design improvements to computing devices based on the needs of various users.			•
	8.CSY.1.a	Analyze existing computing devices for advantages and limitations.			•
	8.CSY.1.b	Recommend and design improvements to computing devices based on user interactions.			-
	8.CSY.2	The student will apply computational thinking to troubleshoot and document hardware and software-related problems.			•
	8.CSY.2.a	Apply systematic processes to resolve hardware, software, and connectivity related problems.			•
	8.CSY.2.b	Design an end-user document/guide to resolve hardware, software, and connectivity-related problems.			-
	8.CYB.1	The student will investigate and describe ways to protect sensitive data from malware and other attacks.			
	8.CYB.1.a	Identify impacts of hacking, ransomware, scams, phishing, fake vulnerability scans and the ethical and legal concerns.			
	8.CYB.1.b	Describe how cyber-attacks can affect a computing system.			
	8.CYB.1.c	Compare and contrast safe and unsafe computing practices.			
	8.CYB.1.d	Explore how industries and emerging technologies are addressing cyber solutions.			
	8.CYB.1.e	Model common prevention practices for cyber-attacks.			
	8.CYB.2	The student will investigate and explain how physical and digital security measures can protect electronic information for businesses, governments, and organizations.			-
	8.CYB.2.a	Investigate and explain how physical and digital security measures are used to safeguard electronic information.			
	8.CYB.2.b	Research the advantages and limitations of different security measures in protecting users against security threats.			
	8.CYB.2.c	Explore how emerging technologies may affect methods to safeguard personal and public data.			

Topic	Number	Standard	Discover	Explore	Challenge
Data & Analysis	8.DA.1	The student will create computational models to simulate events or represent phenomena.			-
	8.DA.1.a	Compare and contrast the use of computational models and simulations to analyze patterns and replicate phenomena.			-
	8.DA.1.b	Design and create complex computational models that simulate dynamic systems (abstraction), incorporating multiple variables and interactions.			-
	8.DA.1.c	Refine computational models based on generated outcomes.			-
	8.DA.2	The student will evaluate computational models to analyze patterns and make recommendations or predictions.			-
	8.DA.2.a	Define data biases within a dataset and the unintended consequences that may impact data reliability and final analysis.			-
	8.DA.2.b	Analyze patterns and interpret data generated by computational models and simulations, identifying meaningful patterns and relationships.			-
	8.DA.2.c	Utilize data visualization techniques to communicate and present findings derived from computational models and simulations.			-
Impacts of Computing	8.IC.1	The student will assess the social impacts and ethical considerations of computing technologies.			-
	8.IC.1.a	Analyze the impact of sharing data through computing technologies.			
	8.IC.1.b	Critique the role the Internet plays in social life, the global economy, and culture.			
	8.IC.1.c	Evaluate online and print sources for credibility and reliability.			●
	8.IC.1.d	Research and discuss factors that impact access and availability to computing technologies.			-
	8.IC.1.e	Discuss ethical issues around cybersecurity and networks: censorship, privacy, safety, and access.			
	8.IC.2	The student will analyze and evaluate the ramifications of screen time in one's life.			
	8.IC.2.a	Analyze scenarios or case studies to assess the impact of screen time on one's physical and mental health.			
	8.IC.2.b	Justify the argument that excessive screen time and video games can have significant consequences for the physical, emotional, and cognitive development of children and adolescents.			
	8.IC.3	The student will identify opportunities for education, training, and preparation to enter into a chosen computer science career field.			●
	8.IC.3.a	Identify an education and training plan for a chosen computer science career.			●
	8.IC.3.b	Outline the use of computer science skills required in a chosen career.			●
	8.IC.3.c	Develop short-and long-term goals for a chosen career.			●
	8.IC.3.d	Research emerging trends in a chosen career path.			●
	8.NI.1	The student will model and describe the role of computing devices in transmitting data in and on computing networks and the Internet.			
Networks & the Internet	8.NI.1.a	Identify the roles of computing devices: routers, switches, servers, and clients communicating over a network.			
	8.NI.1.b	Design a network topology of computing devices.			
	8.NI.1.c	Demonstrate how data is transmitted over networks and the Internet.			
	8.NI.1.d	Analyze factors that strengthen or weaken network connectivity			