

Quarter 1

Please refer to the Digital Learning Integration and Computer Science SOL and Framework Documents for expansion on strands and standards

	Topic	Teaching the Standard		Teacher Notes
	Strand and/or Standard	Vocabulary	Question Prompts	Resources and Suggestions
Week 1	Cybersecurity 3.10-AUP - Identify problems that relate to inappropriate use of computing devices and networks. 3.11-passwords - Create examples of strong passwords, explain why strong passwords should be used, and demonstrate proper use and protection of personal passwords.	- computing device - password	- What is appropriate use of technology? - If you see someone using technology inappropriately in school, how should you notify the proper person? - What are some consequences of inappropriate use of computing technology? - What are the components of a strong password? - Why should you change your password periodically? - Why should you have a different password for different accounts?	- Give an overview of your rules, procedures, and expectations in the lab. - Passwords should include: - uppercase/lowercase letters - Numbers - Symbols - At least 8 characters - Don't use words from a dictionary. - Don't use the same passwords twice. - Don't use personal information
Week 2	Digital Learning Integration	Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational	What traits, characteristics, and skills does each role exhibit?	VDOE Digital Learning Integration SOLs

		Thinker, Creative Communicator, Global Collaborator		
Week 3	Empowered Learner Certification Pathways	Certification, roles from above	• What device and digital integration skills are your strengths? • Which skills would you like to build up this year?	
Week 4	Cybersecurity • 3.10-AUP • 3.11-passwords Impacts of Computing • 3.15-positive/negative impacts ○ Identify the positive/negative impacts of the pervasiveness of computers and computing in daily life(e.g, downloading videos and audio files, electronic appliances, wireless Internet, mobile computing devices, GPS systems, wearable computing). • 3.16-social/ethical issues ○ Identify social and ethical issues that relate to computing	• computing device • password • cyberbullying	• What is appropriate use of technology? • If you see someone using technology inappropriately in school, how should you notify the proper person? • What are some consequences of inappropriate use of computing technology? • What are the components of a strong password? • Why should you change your password periodically? • Why should you have a different password for different accounts? • How do computing devices make your life easier? • How have computing devices made people's lives more complicated? • What are ways to limit the negative influences of computing devices? • How could computing technology make it easier for people to engage in negative behavior? • What should you do if you see other people using a computer to do harm to others?	

	devices and networks.		What is cyberbullying?	
Week 5	Networking and the Internet 3.17-information transmission - Discuss in partners and as a class that information can be transmitted using computing devices via a network(e.g, email, blogging, video messaging).	- network - email - blog - text message - video conferencing	- What are the different types of electronic communication? - How do you decide which method of communication is best for a particular situation? - How does information travel from computing device to computing device?	
Week 6	Computing Systems 3.8-input/output - Model how a computing systems works including input/output. 3.9-hardware/software and basic troubleshooting - Identify, using accurate terminology, simple hardware and software problems that may occur during use, and apply strategies for solving	- computing systems - input - output - reboot - troubleshoot	- What is a system? - Why are computers considered a system? - What are the different types of output that a computer can produce? - How can you tell a computer is not working as intended? - How can you find out specifically why your computer is not working? - What are different troubleshooting tactics you should try if a program is not working? - Why is it important to be as specific as possible when you are describing a problem?	

	problems (e.g., rebooting the device, checking for power, checking network availability, closing and reopening an app).			
Week 7	Computing Systems • keyboarding			
Week 8	Computing Systems • Keyboarding • Creating a document			
Week 9	Computing Systems • Keyboarding • Creating a document			

Quarter 2

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	Topic	Teaching the Standard		Teacher Notes
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Week 1	Algorithms and Programming 3.1-Algorithms/Instructions 3.2-Programming/Block Coding 3.3-Debugging 3.4-Iterative Design 3.5-Compare/Contrast 3.6-Decompose 3.7-Credit Source			- Give overview of unit - code.org - Scratch Jr.
Week 2	Algorithms and Programming 3.5-Compare/Contrast - Compare and contrast a group of items based on attributes or actions classified into at least two sets and two subsets.	subset	- Why is it useful to sort objects into sets and why is it helpful in our daily lives? (Given a set of objects) How many different ways can you find to organize these objects? - How are items organized with multiple attributes? - What attributes can be used to divide a set into subsets? - Why is the sorting of attributes important for computer science?	
Week 3	Algorithms and Programming 3.1-algorithms/instructions - Construct sets of step-by-step instructions (algorithms),	- algorithm - Loop - event - repeat - bug - debug - program	- How do you decide when to use a loop in a sequence? - What are examples of repeating patterns and growing patterns? - What are examples of events in a plugged or unplugged activity? - How would you write	

	both independently and collaboratively (a) using sequencing; (b) using loops (a wide variety of patterns such as repeating patterns or growing patterns); (c) using events. 3.2-programming/block coding - Construct programs to accomplish tasks as a means of creative expression using a block or text-based programming language, both independently and collaboratively (a) using sequencing; (b) using loops (a wide variety of patterns such as repeating patterns or growing patterns); (c) using events.		instructions for an action that repeats itself? - What are different ways that you can signal the start of a program? - How are loops and events used when constructing programs? - What are examples of creative products that you can use a sequence to make? - If your algorithm is not working, how could you find the error? - Once you have found an error in your algorithm, how do you decide what adjustment, how do you decide what adjustment needs to be made? - How can the order of your steps affect what happens?	
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	3.3-debugging - Analyze, correct, and improve(debug) an algorithm that includes sequencing, events, and loops.			
Week 4	Algorithms and Programming 3.1-algorithms/instructions - c-events 3.2-programming - c-events	event	How are loops and events used when constructing programs?	
Week 5	Algorithms and Programming 3.4-iterative design - Create a plan as part of the iterative design process, independently , and/or collaboratively using a variety of strategies (e.g., pair programming, storyboard, flowchart, pseudo-code, story map). 3.6-decompose - Break down (decompose) a larger problem into smaller	- storyboard - graphic organizer - pair programming - decompose	- How can you use planning tools to create a program (just like you would for a story)? - Why is reviewing and revising your work important? - Why is planning out a story or program an important part of the writing process? - If you have a big job to do, what are ways you can break it down to make it easier? - Why does breaking a problem down into smaller problems make the overall task easier?	

	subproblems, independently or collaboratively.			
Week 6	Algorithms and Programming 3.4-iterative design - Create a plan as part of the iterative design process, independently , and/or collaboratively using a variety of strategies (e.g., pair programming, storyboard, flowchart, pseudo-code, story map). 3.7-credit source - Give credit to sources when borrowing or changing ideas (e.g., using information and pictures created by others, using music created by others, remixing programming projects).	- storyboard - graphic organizer - pair programming - author - illustrator - composer	- How can you use planning tools to create a program (just like you would for a story)? - Why is reviewing and revising your work important? - Why is planning out a story or program an important part of the writing process? - How can you find the creator of an artifact? - What are examples of artifacts that need to have their creators credited? - Why is it important to give credit for using someone else's idea, even if you aren't quoting them directly?	
Week 7	Algorithms and Programming			

	• 3.1-Algorithms/Instructions • 3.2-Programming/Block Coding • 3.3-Debugging • 3.4-Iterative Design • 3.5-Compare/Contrast • 3.6-Decompose • 3.7-Credit Source			
Week 8	Algorithms and Programming • 3.1-Algorithms/Instructions • 3.2-Programming/Block Coding • 3.3-Debugging • 3.4-Iterative Design • 3.5-Compare/Contrast • 3.6-Decompose • 3.7-Credit Source			
Week 9	Algorithms and Programming • 3.1-Algorithms/Instructions • 3.2-Programming/Block Coding • 3.3-Debugging • 3.4-Iterative Design • 3.5-Compare/Contrast • 3.6-Decompose • 3.7-Credit Source			

Quarter 3

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	Topic	Teaching the Standard		Teacher Notes
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Week 1	Impacts of Computing 3.14-historical/cultural impacts - Identify computing technologies that have changed the world and express how those technologies influence, and are influenced by, cultural practices. 3.15-positive/negative impacts - Identify the positive/negative impacts of the pervasiveness of computers and computing in daily life (e.g., downloading video and audio files, electronic	- Internet - cyberbullying	- What are examples of computing technologies that changed the world? - How has technology, like mobile phones, changed society? - How does society influence the technology that we invent? - If you could design a new computing technology, what would it do, and why? - How do computing devices make your life easier? - How have computing devices made people's lives more complicated? - What are ways to limit the negative influences of computing devices? - How could computing technology make it easier for people to engage in negative behavior? - What should you do if you see other people using a computer to do harm to others? - What is cyberbullying?	

	appliances, wireless Internet, mobile computing devices, GPS systems, wearable computing). • 3.16-social/ethical issues ○ Identify social and ethical issues that relate to computing devices and networks.			
Week 2	Impacts of Computing • 3.14-historical/cultural impacts • 3.15-positive/negative impacts • 3.16-social/ethical issues Data and Analysis • 3.13-create an artifact ○ Create an artifact using computing systems to model the attributes and behaviors associated with a concept(e.g., day and night, animal life cycles, plant life cycles).	• model	• What are examples of models that we see and use regularly? • What are examples of things in the world that you can model? • What kinds of things do you need to know before you begin to make a model? • How does a computer model help us learn and predict things about systems?	

Week 3	Impacts of Computing • 3.14-historical/cultural impacts • 3.15-postive/negative impacts • 3.16-social/ethical issues Data and Analysis • 3.13-create an artifact			
Week 4	Impacts of Computing • 3.14-historical/cultural impacts • 3.15-postive/negative impacts • 3.16-social/ethical issues Data and Analysis • 3.13-create an artifact			
Week 5	Digital Resources Project (create a presentation)			
Week 6	Digital Resources Project (create a presentation)			
Week 7	Digital Resources Project (create a presentation)			
Week 8	Digital Resources Project (create a presentation)			
Week 9	Digital Resources Project (create a presentation)			

Quarter 4

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	Topic	Teaching the Standard		Teacher Notes
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Week 1	Data and Analysis 3.12-conclusions and predictions(graph) - Use a computer to observe and analyze data in order to draw conclusions and make predictions.	- data - prediction	- What can you learn from looking at your data in different ways? - How can you use the data you have collected to make a prediction or answer a question? - How does a computer help you look at data in different ways?	
Week 2	Data and Analysis 3.12-conclusions and predictions(graph)	- data - prediction	- What can you learn from looking at your data in different ways? - How can you use the data you have collected to make a prediction or answer a question? - How does a computer help you look at data in different ways?	
Week 3	Data and Analysis 3.12-conclusions and predictions(graph)	- data - prediction	- What can you learn from looking at your data in different ways? - How can you use the data you have collected to make a prediction or answer a question? - How does a computer help you look at data in different ways?	
Week 4	Data and Analysis 3.12-conclusions and predictions(graph)	- data - prediction	- What can you learn from looking at your data in different ways? - How can you use the data you have collected to make a	

			prediction or answer a question? • How does a computer help you look at data in different ways?	
Week 5	Review, Reflect, Expand			
Week 6	Review, Reflect, Expand			
Week 7	Review, Reflect, Expand			
Week 8	Review, Reflect, Expand			
Week 9	Review, Reflect, Expand			