Grade 7 BCIT Course: Emerging Technologies & Skills

Unit 1: Course Introduction

Enduring Understandings:

- Computer and information technology skills foster innovation, creativity, productivity, and are valuable assets in the 21st century.
- STEM skills such as computational thinking, design, and problem solving are fundamental skills for everyone, not just computer scientists.
- People can have access to information almost instantly, but risks and harmful behaviors should be recognized and avoided.

Essential Questions:

- How do STEM skills integrate with my education and life experiences?
- What are my responsibilities for using technology and what constitutes misuse of technology?

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Class Overview & Expectations ***Connections to Career Opportunities in Computer Science***	Summarize and explain: • Course content • Importance of computational skills • Lack of students and professionals (especially females and minorities) needed to fill CS careers. • Computational thinking is needed more and more as advancements in computer technology change society. • Classroom expectations • Neshaminy's Acceptable Use Policy (AUP)	Discuss and identify classroom goals and expectations. Describe the importance of computational skills. Summarize the most important aspects of Neshaminy's AUP. Describe sanctions and violations related to inappropriate or unacceptable use of technology. Apply responsible network and Internet guidelines on a day-to-day basis. Participate in classroom discussions on course overview, course expectations, Neshaminy's AUP, and the need for technology skills.	Course information will be provided on teacher website.	Participation and feedback from class discussions.	Teacher-created materials. Current news on computer science and CS skills. Teacher selected online videos on CS, IT, and skills needed to succeed in today's digital world. Neshaminy's Acceptable Use Policy (http://www.neshaminy.org/cms/lib6/PA01000466/Centricity/Domain/7/bd%20pol%20811.pdf)

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Login Procedures
 	
Basic Computer Troubleshooting
	Access Neshaminy's network and teacher website, Canvas page, or other sites needed for coursework using assigned username and password.
	
	Troubleshoot basic computer problems and report issues to teacher, as needed.
		Independently log in to Neshaminy's network and other teacher websites that provide class materials.
		
		Successfully navigate to teacher's Neshaminy webpage and/or Canvas page.
		
		On a daily basis, troubleshoot computer problems and login issues:
		• Check for power
		• Verify URL
		• Verify network connectivity
		• Close and reopen app
		• Try on a different web browser
		• Login issues:
		  ○ Forgotten username or password
		  ○ Caps lock
		  ○ Num lock
		• Report issues to teacher, as necessary
			Clinic and/or WIN period assistance given as necessary.
			
			Teacher assistance with forgotten username or password.
				Teacher observation of student login procedures.	School's student login credential list.

Google Chrome Bookmarking	Increase online efficiency by using web browser bookmarks.	Create bookmarks for teacher website, Scratch, Canvas, etc.	Create bookmarks for other frequently used websites, such as Canvas.	Teacher observation of bookmark.	

Standards*:* ***BCIT****: 15.2.8.D, 15.2.8.L, 15.2.8.O, 15.2.8.Q, 15.3.8.K, 15.3.8.L, 15.3.8.N, 15.3.8.T, 15.3.8.X, 15.4.8.A, 15.4.8.B, 15.8.8.C, 15.8.8.I, 15.8.8.K* ***ISTE-NETS:*** *1B, 1D, 2A, 2B, 2C, 2D, 3D, 6A, 6D* ***CSTA:*** *2-C-6-13, 2-I-7-19* ***Science & Technology:*** *3.2.7.D, 3.7.7.C 3.7.7.D* ***CC-ELA:*** *CC.1.2.7.B, CC.1.2.7.F, CC.1.2.7.J, CC.1.2.7.K, CC.1.2.7.L CC.1.5.7.A, CC.1.5.7.B, CC.1.5.7.E, CC.1.5.7.G* ***CC-Reading in Science & Tech.:*** *CC.3.5.6-8.C, CC.3.5.6-8.D*

Grade 7 BCIT Course: Emerging Technologies & Skills
Unit 2: Computational Concepts—Scratch Programming

Enduring Understandings:

- Students empower themselves by learning and applying computational skills and thinking.
- Computer programming can be learned at any age and is a fundamental skill that is needed in nearly all industries.

Essential Questions:

- How does Scratch allow you to interact with the computer?
- Why is there a huge demand for students to take more computer science classes?
- How can I use programming in my everyday life?

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Computational Concepts	Explain the difference between block-based programming and text-based programming. Relate how knowledge of Scratch is a foundation for learning more complex text-based programming languages. Justify the need for more students trained in computer science. Explain the difference between encoding and decoding.	Describe how Scratch compares to more advanced text-based programming languages. Explain the concept of computational creation, in the context of Scratch. Analyze the growing need for programming and technology skills in today's workplace. Discuss the shortage of CS majors, especially women and minorities, in the workplace. Contribute to classroom discussions relating to computer science.	Clinic and/or WIN period assistance given, as necessary. #girlSTEM field trip	Feedback from class discussions. Formative assessments (short written descriptions answering prompts)	Scratch website https://scratch.mit.edu Computing Research Association http://cra.org/resources/workforce-reports/ Stack Overflow Developer Survey Results 2017 https://insights.stackoverflow.com/survey/2017 Refer to Appendix A: Academic Vocabulary List

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Scratch Vocabulary	Demonstrate and reinforce knowledge of Scratch terminology through classroom discussions and assignments. Engage effectively in a range of collaborative discussions on Scratch programming, using Scratch terminology correctly.	Use G Suites to define the following Scratch terms: • Scratch • Block-based programming • Algorithm • Block • Script • Event Blocks/hat blocks • Sprite • Costume • X & Y Coordinates • Stage/backdrop • Loop/iteration • Backpack • Debug • Iterative-design process	G Suite tool used for vocabulary is at the teacher's and/or student's discretion (Docs, Sheets, or Slides). Collaborate with peers on a shared Scratch vocab document in G Suite. Provide a vocabulary list for students, as needed. Clinic and/or WIN period assistance.		Refer to Appendix A: Academic Vocabulary List Refer to Appendix B: Scratch Block Types
Scratch Programming	Explain what Scratch is, who uses it, and what it's used for. Navigate within the Scratch interface. Use the iterative design process to create Scratch projects of varying difficulty containing a variety of blocks, scripts, and sprites.	View teacher-selected introduction videos on Scratch and explore Scratch projects that are featured on the home page. View Scratch presentations by switching to the Presentation Mode. Create an online Scratch account using a teacher-created email account reserved just for Scratch. Analyze scripts and predict their outcome. With teacher-guided instructions, create an introductory Scratch project.	Simplify Scratch projects with step-by-step visual directions using Scratch's 'Tip Window'. All students to create a project based upon their own ideas. Projects with step-by-step directions can be used for students based upon their IEP or 504 plans. Reflection assignments on Scratch projects.	**District SLO Pretest & Posttest** Teacher-created assignments. Introductory Assignment (on Scratch website, look for "Create my First Scratch Project.") Ongoing Self-Evaluation: Test, debug and revise.	District Scratch SLO Pretest, Posttest and answer key. Teachers must create and set up a Teacher Scratch Account/Class (see Scratch educators page). Scratch Teacher Website (http://www.scratch.mit.edu/educators)

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	Apply mathematical concepts in the completion of Scratch scripts. Run, test, and debug programs. Persevere in solving debugging scripts. Collaborate with peers by offering assistance with testing and debugging programs. Explain how two or more different scripts can carry out the same task. Explain sequential execution of blocks.	Navigate within the Scratch interface: • Menu bar • Title line • Shrink/enlarge buttons • Delete button • Duplicate button • Begin project flag • Stop project button • Scripting area • Sprites pane • Blocks palette • Costume pane • Sounds pane Create and design various Scratch projects by dragging and connecting various blocks of code within the scripting area: • Motion • Sound • Data • Control • Operators • Looks • Pen • Events • Sensing Import saved images as sprites and stages. Experiment with blocks by moving the order of blocks and/or changing the value within a block. Execute and see the changes made. Select and combine control structures (loops, conditionals, event handlers, Boolean events) to specify the flow of execution.	Increase the complexity of programs: • Create variables to store data • Use broadcasting to control interaction between sprite. • Use conditional commands, operator blocks, custom-made blocks, and Boolean logic. • Use the stamp, pen, and clear blocks • Create a project with user interface design. Create an advanced project, such as one with: • Countdown timer • Cloning • Obstacles randomly appearing • Multiple levels • Multiple lives (variables) • High score variable	Debugging assignments created by teacher. **Mandatory Scratch Cyber Safety Project**: Transfer and apply knowledge of Scratch to create an animation with a cyber security theme. Topics such as: Internet safety, Cyber bullying, Up stander Behavior, Digital Citizenship, Email Scams, Password Protection, Digital Footprints, Online Reputation, Device Security, etc.	Harvard's Guide to Scratch (http://scratched.gse.harvard.edu/guide/files/CreativeComputing20141015.pdf)

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		Add audio to a Scratch project. Use the iterative design process to create, test, and debug programs throughout the creation process. Contribute to classroom discussions related to Scratch and programming. Assess peers' projects and provide feedback on any programming issues. Debug Scratch programs that have intentional errors, sharing your solution with the class (see how many different solutions can be found).	Upload audio for use in a Scratch project. Create a project containing a self-recorded audio sound file (use the Tiki microphones). Remix a Scratch project. #girlSTEM field trip		
District SLO—7th Grade Scratch	Students will demonstrate secured Scratch programming and vocabulary skills.	Students will receive a 10 percent or higher score on the Scratch Posttest as compared to the Pretest.		**District SLO Pretest & District SLO Posttest**	Neshaminy School District BCIT 7th Grade SLO Pretest and Posttests with answer key

Standards: ***BCIT****: 15.2.8.D, 15.2.8.G, 15.2.8.O, 15.2.8.Q, 15.3.8.C, 15.3.8.D, 15.3.8.E, 15.3.8.G, 15.3.8.H, 15.3.8.I, 15.3.8.K, 15.3.8.L, 15.3.8.M, 15.3.8.N, 15.3.8.S, 15.3.8.U, 15.3.8.X, 15.4.8.A, 15.4.8.B, 15.4.8.D, 15.4.8.G, 15.4.8.H, 15.4.8.I, 15.4.8.J, 15.4.8.K, 15.4.8.M, 15.8.8.I, 15.8.8.J, 15.8.8.K* ***CSTA****: 2-A-2-1, 2-A-7-2, 2-A-7-4, 2-A-5-5, 2-A-5-6, 2-A-5-7, 2-A-3-9, 2-A-6-10, 2-D-4-17, 2-I-7-19* ***ISTE-NETS****: 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3C, 3D, 4A, 4B, 4C, 4D, 5A, 5C, 5D, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D* ***Science & Technology:*** *3.6.7.B, 3.7.7.A, 3.7.7.C, 3.7.7.D, 3.7.7.E* ***CC-ELA****: CC.1.5.7.A, CC.1.5.7.E, CC.1.5.7.G* ***CC-Reading in Science & Tech.****: CC.3.5.6-8.C*

Grade 7 BCIT Course: Emerging Technologies & Skills
Unit 3: Keyboarding Skills Reinforcement

Enduring Understandings:

- Touch-typing skills must be learned and practiced on a regular basis in order to improve.

Essential Questions:

- How can I improve my keyboarding skills?

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Touch Typing *Daily keyboarding drills for reinforcement of touch-typing skills.*	Reinforce keyboarding skills using the touch method of keyboarding and demonstrate proper technique. Improve touch-typing skills.	Review and practice proper position while keyboarding. Identify and correct weaknesses in touch-typing and technique with regular practice drills. Practice keyboarding with individualized typing drills based upon problem keys. Participate in class discussions. Explain how developing solid keyboarding skills increases productivity: • Research an article on how touch-typing improves English skills. • Complete a Text Dependent Analysis paragraph on findings.	Touch-typing will be introduced to students without prior touch-typing experience. Clinic and/or WIN period practice offered, as needed. Practice drills outside of classroom time. Higher-level practice drills provided for advanced students.	Touch typing Pretest Anecdotal observation, monitoring, and adjustment of keyboarding posture and touch typing skills. Touch typing and keyboarding technique data collection sheets. Touch Typing Posttest to show improvement in accuracy and/or speed. TDA Paragraph	Typing Agent Software Online videos of teacher choice G Suites Learning: http://gsuite.google.com/learning-center/

Standards: ***BCIT:*** *15.2.8.L, 15.3.8.A, 15.3.8.E, 15.3.8.F, 15.3.8.I, 15.3.8.S, 15.3.8.X, 15.4.8.A, 15.4.8.B, 15.8.8.I* ***ISTE-NETS****: 1A, 1B, 1C, 1D, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4D, 6C, 7A, 7B* ***Science & Technology:*** *3.7.7.A, 3.7.7.C, 3.7.7.D* ***CC-ELA:*** *CC.1.2.7.A, CC.1.2.7.B, CC.1.2.7.F, CC.1.2.7.J, CC.1.2.7.K, CC.1.2.7.L, CC.1.4.7.A, CC.1.4.7.B, CC.1.4.7.C, CC.1.4.7.D, CC.1.4.7.E, CC.1.4.7.F, CC.1.5.7.A, CC.1.5.7.B, CC.1.5.7.E, CC.1.5.7.G* ***CC-Reading in Science & Tech.:*** *CC.3.5.6-8.A, CC.3.5.6-8.B, CC.3.5.6-8.D* ***CC-Writing in Science & Tech.:*** *CC.3.6.6-8.B, CC.3.6.6-8.C, CC.3.6.6-8.D, CC.3.6.6-8.E, CC.3.6.6-8.H*

Grade 7 BCIT Course: Emerging Technologies & Skills
Unit 4: G Suite Tools & Applications

Enduring Understandings:

- G Suite is Google's cloud-based service used to create and store files created in Google Docs, Google Sheets, and Google Slides.
- G Suite allows accessibility to documents from any device with Internet access.

Essential Questions:

- What is G Suite and how can I use it to help me in life?
- What tools are available with G Suite?

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G Suite **Google Drive** *Organization of Digital Files*	Explain why G Suite is and how it can be used for both Google documents and non-Google documents.. Organize files in G Suite. Set a document's visibility and permissions, sharing files with the teacher and/or peers.	Explore G Suite contributing to classroom discussion on the advantages and disadvantages of using it. Create folders and subfolders to organize files within G Suite. Display the list of files in Google Drive as both a grid and a list view. Change a document's visibility and permissions so that it can be shared with the teacher or peers.	Clinic and/or WIN period assistance given, as necessary.	Teacher-guided practice Teacher-created assignments	Using Google Drive information webpage Teacher-created materials
G Suite Tools & Applications ➢ **Google Docs** ➢ **Google Sheets** ➢ **Google Slides**	Compare and contrast G Suite, Google Docs, Google Sheets, and Google Slides. Select the appropriate G Suite tool for the assigned task.	Identify and utilize the appropriate G Suite tool for each task assigned. Access G Suite to create, save, open, share, move, delete, and review documents in: • Google Docs • Google Sheets • Google Slides	Clinic and/or WIN period assistance given as necessary. Add slide transitions and object animations to Google Slides presentations.	Teacher-created assessments Scratch vocabulary list created in G Suite (Unit 2)	List of keyboard shortcuts in G Suite tools can be viewed and printed from within a G Suite tool: • CTRL + /

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	Format documents in G Suite: Google Docs, Google Sheets, and Google Slides. Share G Suite files with the teacher. Use a G Suite to collaborate with peers.	Format text in Google Docs: • Text style, color, size • Highlight color • Bold, italics, underline • Change text case (lower, UPPER, Title Case) • Paragraph spacing • Text alignment • Undo/redo actions • Page orientation & margins • Keyboard shortcuts • Copy and paste (with and without formatting) • Insert and format images • Hyperlinks • Spelling/grammar check Insert data into a shared Google Sheet: • Adjust cell height & width • Apply background color to cells • Sort data within the cells • Apply borders • Insert, delete & move rows • Insert, delete & move columns • Resize columns • Resize row height • Spell check	Use a template for document creation. Advanced formatting applications: • Insert a table • Table properties • Create lists • Image properties • List types • Capitalization settings • Page properties • Text boxes • Insert videos Create a survey in Google Forms.	Emerging Technologies project created within G Suite (Unit 5)	

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		Use Google Slides appropriate tasks: • Apply a theme • Insert slides • Select slide layouts • Insert and format images • Create hyperlinks • Move & delete slides • Spell check **Create and format a G Suite document for Scratch Vocabulary (see Unit 2). **Create and format a Google document for Emerging Technologies (see Unit 5). **Collaborate on a class-wide shared G Suite document. **Preference as to which Google App (Docs, Sheets, Slides) to use will be at teacher's discretion.			

Standards*:* ***BCIT:*** *15.2.8.G, 15.2.8.L, 15.3.8.A, 15.3.8.B, 15.3.8.C, 15.3.8.D, 15.3.8.E, 15.3.8.G, 15.3.8.H, 15.3.8.I, 15.3.8.K, 15.3.8.M, 15.3.8.N, 15.3.8.S, 15.3.8.T, 15.3.8.U, 15.3.8.V, 15.3.8.W, 15.3.8.X, 15.3.8.A, 15.4.8.B, 15.4.8.C, 15.4.8.D, 15.4.8.F, 15.4.8.G, 15.4.8.K, 15.7.8.I,15.8.8.I* ***ISTE-NETS:*** *1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4A, 4B, 4D, 6A, 6B, 6C, 6D, 7A, 7B, 7C* ***Science & Technology:*** *3.7.7.A, 3.7.7.C, 3.7.7.D, 3.7.7.E* ***CC-ELA:*** *CC.1.2.7.J, CC.1.4.7.A, CC.1.5.7.A, CC.1.5.7.E, CC.1.5.7.G* ***CC-Reading in Science & Tech.:*** *CC.3.5.6-8.C, CC.3.5.6-8.D* ***CC-Writing in Science & Tech.****: CC.3.6.6-8.C, CC.3.6.6-8.E, CC.3.6.6-8.J..*

Grade 7 BCIT Course: Emerging Technologies & Skills
Unit 5: Emerging Technologies

Enduring Understandings:

- New, emerging technologies will influence future lifestyles, jobs, and skills needed to succeed.

Essential Questions:

- What are some of the newest technologies that are being developed and how will impact life and job skills of the future?

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Emerging Technologies	Distinguish between relevant and non-relevant information for note taking and decision making. Summarize and critique emerging technologies and list the advantages and disadvantages of each. Justify the likelihood of each emerging technology coming to fruition.	Explore the influence of emerging technologies by viewing videos and news articles: • Summarize and critique each technology using a G Suite tool for note taking and reporting (Unit 4) • List the advantages and disadvantages of each technology • Hypothesize the likelihood of each emerging technology coming to fruition • Support opinions with facts • Share project with teacher Analyze and discuss the impact emerging technologies will have on society and on the job skills and innovative services needed to succeed. Participate in classroom discussions.	Supply website links for information on emerging technologies to students needing assistance. Advanced students can research other technologies and collaborate on a shared document on the information they found. Students can research and report the estimated cost of each technology. #girlSTEM field trip	Emerging Technologies Project	Topic ideas for emerging technologies (actual technologies will vary depending upon teacher preferences): • Doctor on Demand • Aido Robot • Clever Pet • E-tattoo • Amazon Go • Smart Locks • Terrafugia • Travelmate Robotic Suitcases • 3D Printed Body Parts • Hyperloop • Surface Computing

Standards: ***BCIT:*** *15.2.8.D, 15.2.8.G, 15.2.8.Q, 15.3.8.A, 15.3.8.B, 15.3.8.D, 15.3.8.E, 15.3.8.F, 15.3.8.G, 15.3.8.I, 15.3.8.S, 15.3.8.W, 15.3.8.X, 15.4.8.A, 15.4.8.B, 15.4.8.C, 15.4.8.D, 15.4.8.G, 15.4.8.K, 15.4.8.M, 15.5.8.H, 15.5.8.J, 15.8.8.I, 15.9.8.L* **CSTA**: 2-I-7-19 ***ISTE-NETS:*** *1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4B, 4D, 5B, 6A, 6B, 6C, 6D, 7B, 7C* ***Science & Technology:*** *3.7.7.A, 3.7.7.C, 3.7.7.D, 3.7.7.E, 3.8.7.A, 3.8.7.B, 3.8.7.C* ***CC-ELA:*** *CC.1.4.7.A, CC.1.4.7.C, CC.1.4.7.E, CC.1.4.7.F, CC.1.4.7.H, CC.1.4.7.X, CC.1.4.7.K, CC.1.4.7.I, CC.1.5.7.A, CC.1.5.7.B, CC.1.5.7.E, CC.1.5.7.G* ***CC-Reading in Science & Tech.:*** *CC.3.5.6-8.A, CC.3.5.6-8.B, CC.3.5.6-8.C, CC.3.5.6-8.D* ***CC-Writing in Science & Tech.:*** *CC.3.6.6-8.C, CC.3.6.6-8.F, CC.3.6.6-8.H, CC.3.6.6-8.J.*

Grade 7 BCIT Course: Emerging Technologies & Skills
Unit 6: Cyber Security

Enduring Understandings:

- Use of the Internet comes with rights, responsibilities, and risks.
- Proactive and preventative measures can be used to reduce cyber security risks.
- There are steps that you can take to identify and report deceptive and fraudulent emails.

Essential Questions:

- How can I tell if an email is legitimate?
- What should I do if I receive a suspicious email or visit a suspicious website?

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Cyber Security *Email Safety*	Distinguish characteristics of strong passwords. Recognize email scams, phishing schemes, spam, spoofing, cybersquatting, 419 scams and other tactics used to deceive online users. Know what tools are available to check the legitimacy of online information, emails, and photos. Utilize preventative measures to protect devices and information from unauthorized access.	List 5 or more proactive measures that you can take to minimize cyber security risks. Create strong, memorable passwords using a password generator, if needed. Define and identify spam, phishing schemes, spoofing, cybersquatting, and 419 scams. Analyze emails for legitimacy either alone or with one partner: • Never open emails that you suspect are scams. Close your web browser. • Don't trust the display name/email address. • Hover over email addresses & other links.	Evaluate sample emails and classify them by type of threat. Invite guest speakers, such as NOVA to speak to the class (Network of Victim's Assistance). #girlSTEM field trip Everfi Lessons (http://everfi.com)	Teacher-created assignments **Mandatory Scratch Cyber Safety Project**: Use Scratch to create an animation (story) with a cyber security plot.	Teacher vocabulary list Wombat's Aware Video Campaign (teacher must sign up first): https://www.wombatsecurity.com/watch-our-security-awareness-videos Password Generators: https://identitysafe.norton.com/password-generator/# Password Checker: https://howsecureismypassword.net/ Google's Image Search--Search by image: https://images.google.com/

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		• Open the email header. • Never click on an attachment. • Don't trust logos—anyone can copy and paste. • Don't open emails from friends displaying only a link. • Check emails for spelling errors**,** broken English, strange symbols, urgency, scare tactics, sad stories, unexpected money, and general salutations. • Never email personal information. Analyze various email samples with peers to determine the legitimacy of them. Support your decisions with facts. Log out of websites before logging off the computer. Log off any time you leave your computer (WIN + L).			Recognizing email scams: https://www.us-cert.gov/sites/default/files/publications/emailscams_0905.pdf Verify website or URL owner: https://www.whois.net/ Check facts or other claims: http://www.snopes.com/ U.S. Computer Emergency Readiness Team: https://www.us-cert.gov/report-phishing FBI's Internet Crime Complaint Center: https://www.ic3.gov/default.aspx

Standards: ***BCIT:*** *15.3.8.D, 15.3.8.F, 15.3.8.G, 15.3.8.I, 15.3.8.M, 15.3.8.T, 15.3.8.V, 15.3.8.W, 15.3.8.X, 15.4.8.B, 15.4.8.L, 15.5.5.J, 15.6.8.M, 15.7.8.I, 15.8.8.C* ***ISTE-NETS****: 1A, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4A, 4D, 5B, 6A, 6B, 6C, 6D, 7C* ***Science & Technology:*** *3.7.7.A, 3.7.7.C, 3.7.7.D, 3.7.7.E, 3.8.7.A, 3.8.7.C* ***CC-ELA****: CC.1.2.7.B, CC.1.2.7.D, CC.1.2.7.F, CC.1.2.7.H, CC.1.2.7.J, CC.1.4.7.A, CC.1.4.7.E, CC.1.4.7.F, CC.1.4.7.G, CC.1.4.7.H, CC.1.4.7.I, CC.1.4.7.K, CC.1.4.7.L, CC.1.5.7.A, CC.1.5.7.B, CC.1.5.7.D, CC.1.5.7.E, CC.1.5.7.G*
CC-Reading in Science & Tech.: *CC.3.5.6-8.A, CC.3.5.6-8.D, CC.3.5.6-8.E, CC.3.5.6-8.F, CC.3.5.6-8.H* ***CC-Writing in Science & Tech.:*** *CC.3.6.6-8.H*

Appendix A: Scratch Vocabulary List

Term	Definition
Algorithm	A detailed step-by-step list of commands for the computer to carry out.
Backpack	When logged into a Scratch account, you get a backpack in which you can store scripts, blocks, sprites, music, and then pull them into other projects. The backpack is located at the bottom below the scripting area.
Block	In Scratch, each block is a color-coded command for the computer to run. Blocks are puzzle shaped so that they can snap together.
Block-Based Programming	A type of programming language in which you connect blocks of commands together to create code.
Boolean Logic	There are 13 Boolean Logic Blocks in Scratch, which are hexagonal in shape. They are found under the Sensing Blocks, Operator Blocks and Variables. Boolean commands contain either: And, Or, or Not and are triggered when a condition is either true or false. Example: you can trigger an event: if the up arrow is pressed/when the sprite is touching a color/or when the up arrow is pressed AND touching a color.
Broadcast Block	Broadcast blocks are event blocks that send/broadcast a message to all other scripts in your project. Must be used with the "when broadcast is received" block so that it will activate an event when broadcast.
Clear Block	Clears or removes all graphic effects made to a sprite.
Cloning	A block used to on a sprite to create duplicate sprites of itself when the project is running.
Conditionals	A type of loop blocks such as If and If Else that will only be executed when a specific criteria is met.
Costume	A costume is another look/appearance of a sprite. A sprite can have many costumes. For example: To make a sprite dance, you would need to create a sprite for each movement that the dancer makes. When played together, it makes the sprite appear to dance.
Debug	The process of testing a program and fixing any errors in it.
Decoding	Decoding is of opposite of encoding. It is converting an encoded format back into the original sequence of characters.
Encoding	Encoding is the process of putting a sequence of characters (letters, numbers, punctuation, and symbols) into a specialized format for efficient transmission or storage.
Event Blocks	Event blocks are the 1st block of every script, as they tell the computer when to run the blocks under it. Also known as Hat Blocks.
Iteration	Iteration is the repetition of a sequence of commands (known as a loop). Examples: Forever, wait until, etc.
Iterative Design Process	Designing a program while repeating the cycle of: programming, testing, revising, programming, testing, revising…
Keyboard Input Design	A program that requires the user to type something on the keyboard so they can interact with the program. The blocks that do this are Ask, Wait, Answer.

Term	Definition
Logic Errors	Errors in a text-based programming language that are very difficult to find because these are errors in the commands, such as written commands that writing code to divide a given number by the 7 but programmer accidentally typed 6.
Loop Blocks	Blocks such as Forever, Repeat, and Repeat Until. Loop blocks make the blocks inside of them repeat. Also known as iteration.
Paint Editor	Scratch's built-in image editor.
Parallelism	The computational concept of having two or more scripts run at the same time.
Play [ ] until Done Block	A sound block that tells the computer to play a song until the end of it.
Presentation Mode	The display mode in Scratch that allows projects to be viewed in full screen mode. It is accessed by pressing the blue square button located at the top, left of the stage.
Remix	Downloading someone else's project and modifying it. This is encouraged in Scratch (give credit to the owner when you do this).
Scratch	A free, block-based programming language developed by MIT. It provides a stepping-stone to more advanced programming.
Scratch Cat	The default sprite in Scratch.
Scratch Interface	The Scratch Interface consists of the places and options that appear on the Scratch screen. The Scratch Interface is split into panes: the menu bar up top, the stage and sprite list on the left, the blocks palettes (scripts, costumes, and sounds tabs) in the middle, and the scripting area on the right.
Script	A group of blocks that are connected together to program an object. All scripts begin with an Event Block.
Scripts Area	The gray area to the right of the Scratch interface where you drag blocks of code together to create a program.
Sequential Execution	Running lines of code in the order in which they are listed. Scratch uses sequential execution.
Sprite	An object that you program to do something.
Stage	The background of a project. Also called backdrop.
Stop Block	The stop block tells a script when to stop running.
Syntax Errors	Errors in a text-based programming language such as misspelled words or misplaced punctuation marks or symbols.
Text-Based Programming	Programming languages in which the commands are written as text instead of blocks. Syntax errors and logic errors must be corrected or the program will not run correctly, if at all.
User Interface Design	A program that has clickable sprites (usually designed as buttons) that allows the user to interact with the program.
Variable	Variables are created to store information that changes throughout the program, such as time, score, lives, etc.
Wait Block	Wait Blocks tell the computer to pause for a specific amount of time.
X & Y Coordinates	Indicate the location of a sprite on the stage. The middle of the screen is: x:0 y:0. X is horizontal and Y is vertical.

Appendix B: Scratch Block Types

Category	Notes
Motion	Moves sprites and changes angles and change X and Y values
Looks	Controls the visuals of the sprite; attach speech or thought bubble, change of background, enlarge or shrink, transparency, shade
Sound	Plays audio files and programmable sequences
Pen	Draw on the portrait by controlling pen width, color, and shade. Allows for turtle graphics.
Data	Variable and List usage and assignment

Category	Notes
Events	Contains event handlers placed on the top of each group of blocks
Control	Conditional if-else statement, "forever", "repeat", and "stop"
Sensing	Sprites can interact with the surroundings the user has created and can import from PicoBoard or Lego WeDo
Operators	Mathematical operators, random number generator, and-or statement that compares sprite positions
More Blocks	Custom procedures (blocks) and external devices control