South Carolina Computer Science and Digital Literacy Standards

Grade 5

Adopted 2017

Process Standards

1. **Foster an inclusive computing culture.**
   a. Recognize that equitable access to computing benefits society as a whole. 1.A
   b. Consider others' perspectives as well as one's own perspective when developing computational solutions. 1.B
   c. Consider the needs of a variety of end users regarding accessibility and usability. 1.C

2. **Collaborate around computing.**
   a. Select appropriate technological tools that can be used to collaborate on a project. 2.A
   b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds. 2.B
   c. Set and implement equitable expectations and workloads when working in teams. 2.C
   d. Integrate constructive feedback while working in teams. 2.D

3. **Recognize, define, and analyze computational problems.**
   a. Recognize when it is appropriate to solve a problem computationally. 3.A
   b. Make sense of computational problems and persevere in solving them. 3.B
   c. Relate computational problems to prior knowledge. 3.C
   d. Recognize that there may be multiple approaches to solving a problem. 3.D
   e. Approach problem solving iteratively, using a cyclical process. 3.E

4. **Create, test, and refine computational artifacts.**
   a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact. 4.A
   b. Recognize when to use the same solution for multiple problems. 4.B
   c. Test computational artifacts systematically by considering multiple scenarios and using test cases. 4.C
   d. Approach troubleshooting systematically. 4.D
   e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts. 4.E

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5. Communicate about computing.

a. Select and use appropriate technological tools to convey solutions to computing problems. 5.A

b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose. 5.B

c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution. 5.C

Content Standards

DL. Digital Literacy 5.DL

1. Use software applications to create an authentic product. 5.DL.1
    1. Create various documents using a word processing program with various page elements (e.g., headers, footers, citations, tables, textboxes). 5.DL.1.1
    2. Edit and format a document using a word processing program to change page and paragraph layouts. 5.DL.1.2
    3. Format a presentation using presentation software (e.g., add transitions and speaker notes). 5.DL.1.3
    4. Demonstrate an effective use of a bulleted list in a word processor and presentation software. 5.DL.1.4
    5. Add data to spreadsheet software and create a simple graph. 5.DL.1.5
2. Demonstrate an awareness of fundamentals of digital citizenship. 5.DL.2
    1. Demonstrate an understanding of digital security (i.e., protecting your digital information). 5.DL.2.1
    2. Demonstrate an understanding of digital rights and responsibilities (e.g., privacy, respectful communication). 5.DL.2.2
3. Demonstrate responsibility when using connected computing devices. 5.DL.3
    1. Demonstrate awareness of software piracy and its consequences. 5.DL.3.1
    2. Understand the legal ramifications for sending or receiving inappropriate content (e.g., cyberbullying, harassment). 5.DL.3.2
4. Demonstrate effective keyboarding skills on a computing device. 5.DL.4
    1. Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 15 words per minute. 5.DL.4.1
    2. Use software capabilities to correct errors. 5.DL.4.2
    3. Demonstrate proper use of software capabilities to name, save, and retrieve information (e.g., organizing files and folders; following naming conventions). 5.DL.4.3

CS. Computing Systems 5.CS

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1. Identify and analyze various components and functions of computing devices (e.g., tablets, laptops, smartphones). 5.CS.1
    1. Select the appropriate computing device for an application (e.g., writing an essay on a laptop versus on a smartphone). 5.CS.1.1
    2. Explain the importance of the major hardware components of the computing device (e.g., input and output devices, processors). 5.CS.1.2
2. Analyze the various types and functions of software. 5.CS.2
    1. Justify the use of different computing devices for relevant tasks. 5.CS.2.1
    2. Explore and compare multiple software applications (e.g., word processor, spreadsheet, presentation software, web browser). 5.CS.2.2
3. Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use. 5.CS.3
    1. Respond appropriately to various error messages (e.g., "webpage not found;" "incorrect password"). 5.CS.3.1
    2. Identify the computing device components that may cause various problems. 5.CS.3.2

NI. Networks and the Internet 5.NI

1. Explore different ways a computer connects to the internet and other computing devices. 5.NI.1
    1. Identify the advantages and disadvantages of various network types (e.g., wired, Wi-Fi, cellular data). 5.NI.1.1
2. Discover the advantages of internet applications. 5.NI.2
    1. Recognize video conferencing as a communication avenue. 5.NI.2.1
    2. Modify search criteria and use advanced search tactics to improve search results. 5.NI.2.2
    3. Utilize websites that are appropriate sources of research. 5.NI.2.3

DA. Data and Analysis 5.DA

1. Identify various ways in which data is stored and represented. 5.DA.1
    1. Save and retrieve files on computing devices. 5.DA.1.1
    2. Recognize how text, images, and sounds are represented as binary numbers in computing devices. 5.DA.1.2
2. Collect, arrange, and represent data. 5.DA.2
    1. Compare and contrast tools for collecting data. 5.DA.2.1
    2. Determine the most effective way to represent a given data set (e.g., bar graphs, line plots). 5.DA.2.2
3. Interpret and analyze data and information. 5.DA.3
    1. Compare and contrast models (e.g., graphs, tables) for data analysis. 5.DA.3.1

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4. Understand the accuracy of conclusions and how they are influenced by the amount of data collected. 5.DA.4

    1. Discuss accuracy based on data available. 5.DA.4.1

AP. Algorithms and Programming 5.AP

1. Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms). 5.AP.1

    1. Execute a sequence of instructions (i.e., algorithm) that mimic a daily task. 5.AP.1.1

2. Use an ordered list of steps (i.e., sequential execution) and simple control structures. 5.AP.2

    1. Recognize that a sequence of steps can be repeated. 5.AP.2.1
    2. Identify the result of a conditional statement (e.g., in the statement, "If it is dark, then turn on the light," the result is the lights turning on). 5.AP.2.2

3. Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks. 5.AP.3

    1. Compose multiple levels of simple tasks (e.g., eating breakfast can include going to the table, sitting down in a chair, and picking up a spoon; brushing your teeth; walking to the bus stop) to make a more complex task. 5.AP.3.1
    2. Decompose a complex task of higher complexity (e.g., cooking a meal) into simple tasks (e.g., selecting a recipe, getting the ingredients, preparing the food, and serving the meal, where the task of getting the ingredients can be decomposed into writing a shopping list, going to a store, selecting and buying the ingredients, and going home). 5.AP.3.2

4. Develop a program to express an idea or address a problem. 5.AP.4

    1. Use a visual language to design and test a program that solves a simple task (e.g., online coding activity). 5.AP.4.1

IC. Impact of Computing 5.IC

1. Discuss how computing has impacted society. 5.IC.1

    1. Discuss the positive and negative impacts of computing on society. 5.IC.1.1

2. Evaluate the relevance and appropriateness of electronic information sources. 5.IC.2

    1. Demonstrate an understanding of the relevance and appropriateness of various electronic information sources (e.g., online databases such as Discus; web search engines). 5.IC.2.1