South Carolina Computer Science and Digital Literacy Standards

Grade 6

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

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 6.DL

1. Use software applications to collaborate and create authentic products. 6.DL.1
    1. Use professional email protocol to communicate and share information with peers and teachers (e.g., addressees, subject line, body, salutations, closing). 6.DL.1.1
    2. Share documents created using word processing, presentation, and spreadsheet software via email attachments. 6.DL.1.2
    3. Use formulas in spreadsheets to perform real-world calculations (e.g., creating budgets). 6.DL.1.3
2. Understand risks and responsibilities of being a digital citizen. 6.DL.2
    1. Identify rules for safe internet use. 6.DL.2.1
    2. Identify appropriate use of social media (e.g., cyberbullying prevention). 6.DL.2.2
    3. Identify appropriate use of computing devices. 6.DL.2.3
3. Understand issues associated with appropriate use of personal digital information. 6.DL.3
    1. Define and identify personal digital information. 6.DL.3.1
    2. Identify consequences of inappropriate sharing of personal digital information. 6.DL.3.2
4. Demonstrate keyboarding speed and accuracy on a computing device. 6.DL.4
    1. Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 20 words per minute. 6.DL.4.1

CS. Computing Systems 6.CS

1. Analyze the use of computing to solve relevant problems. 6.CS.1
    1. Identify and describe the key functional components (e.g., input devices, output devices, processor, operating system, software applications, memory, storage) of a computer. 6.CS.1.1
    2. Identify relevant problems and how they are solved using computer science and various types of computing devices (e.g., directions to a location can be obtained through Global Position Systems (GPS) and/or online maps). 6.CS.1.2
2. Examine how computing devices function. 6.CS.2
    1. Understand various ways software is acquired and installed. 6.CS.2.1
3. Evaluate various solutions to common hardware and software problems. 6.CS.3
    1. Identify the source of a problem using a systematic process (i.e., troubleshooting). 6.CS.3.1

NI. Networks and the Internet 6.NI

1. Analyze various network structures and how data is transmitted. 6.NI.1
    1. Identify and define hardware required to connect to a network (e.g., connect a school tablet or computer to Wi-Fi, network, or internet). 6.NI.1.1
    2. Define an IP address and show an example. 6.NI.1.2
    3. Identify a Uniform Resource Locator (URL). 6.NI.1.3
    4. Define a packet and explain how they are used to transmit data across a network. 6.NI.1.4
2. Identify methods to protect data, information, and computing devices across networks. 6.NI.2
    1. Identify common security risks associated with using computer networks (e.g., compromised passwords, phishing, viruses). 6.NI.2.1
    2. Identify how individuals and organizations protect data and information from security risks associated with using computer networks. 6.NI.2.2

DA. Data and Analysis 6.DA

1. Evaluate the storage and representation of data. 6.DA.1
    1. Identify the file extensions (e.g., .ppt, .pdf, .mp3) associated with software programs. 6.DA.1.1
2. Analyze how data is collected with both computational and non-computational tools and processes. 6.DA.2
    1. Explore real-world data collection (e.g., identification number at lunch; teacher taking attendance; grocery store shopping card). 6.DA.2.1
3. Analyze various ways to visually represent data. 6.DA.3
    1. Explain how large data sets are represented graphically (e.g., frequency plots, bar graphs). 6.DA.3.1
    2. Represent one set of numerical data (e.g., histograms, box plots, dot plots). 6.DA.3.2

AP. Algorithms and Programming 6.AP

1. Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email). 6.AP.1
    1. Recognize that there are multiple ways to sequence instructions that can lead to the same result. 6.AP.1.1
    2. Interpret pseudocode and flowcharts. 6.AP.1.2
2. Use and compare simple coding control structures (e.g., if-then, loops). 6.AP.2
    1. Select appropriate coding control structures to skip or repeat instructions. 6.AP.2.1
3. Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts). 6.AP.3
    1. Discuss the parts of a program (e.g., components of creating a video game include keeping score, determining winners/losers, moving characters, designing game art, and advancing levels). 6.AP.3.1
4. Design and code programs to solve problems. 6.AP.4
    1. Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a simple program that solves a problem. 6.AP.4.1
5. Identify variables and compare the types of data stored as variables. 6.AP.5
    1. Recognize variables that represent information (e.g., age, first name). 6.AP.5.1
    2. Recognize variables can represent different types of data (e.g., numbers, words, colors, images). 6.AP.5.2

IC. Impact of Computing 6.IC

1. Evaluate the tradeoffs of computing in everyday activities. 6.IC.1
    1. Explore how computer science is and can be used to solve problems in students' daily lives (e.g., "Internet of Things," smart appliances, smart cars). 6.IC.1.1
    2. Discover positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment). 6.IC.1.2
2. Analyze various computing platforms used for communication. 6.IC.2
    1. Identify current communication methods and computing devices. 6.IC.2.1
3. Evaluate the tradeoffs in what and how information is shared digitally. 6.IC.3
    1. Identify guidelines for safely using the internet. 6.IC.3.1
4. Evaluate how legal and ethical issues shape computing practices. 6.IC.4
    1. Identify unethical and illegal behavior. 6.IC.4.1