Florida Computer Science

Grades 6, 7, 8

Adopted 2016

Personal, Community, Global, and Ethical Impact SC.CS-PC

1. **Responsible use of technology and information** SC.CS-PC.1
    1. Recognize and describe legal and ethical behaviors when using information and technology and describe the consequences of misuse. SC.68.CS-PC.1.1
    2. Describe and use safe and appropriate practices when participating in online communities (e.g., discussion groups, blogs, and social networking sites). SC.68.CS-PC.1.2
    3. Evaluate the proper use and operation of security technologies (e.g., passwords, virus protection software, spam filters, pop-up blockers, and cookies). SC.68.CS-PC.1.3
    4. Recognize the impacts and consequences of plagiarism on the development of creative works, projects, publications and online content. SC.68.CS-PC.1.4

2. **The impact of computing resources on local and global society** SC.CS-PC.2
    1. Analyze the positive and negative impacts of computing, social networking and web technologies on human culture. SC.68.CS-PC.2.1
    2. Explain the possible consequences of cyberbullying and inappropriate use of social media on personal life and society. SC.68.CS-PC.2.2
    3. Describe the influence of access to information technologies over time and the effects those changes have had on education, the workplace, and the global society. SC.68.CS-PC.2.3
    4. Describe how the unequal net-neutrality and distribution of computing resources in a global economy raises issues of equity, access, and power. SC.68.CS-PC.2.4
    5. Describe ways in which adaptive technologies can assist users with special needs to function in their daily lives. SC.68.CS-PC.2.5
    6. Identify and discuss the technology skills needed in the workplace. SC.68.CS-PC.2.6
    7. Interpret writings and/or communications which use developmentally appropriate terminology. SC.68.CS-PC.2.7
    8. Identify interdisciplinary careers that are enhanced by computer science. SC.68.CS-PC.2.8

3. **Evaluation of digital information resources** SC.CS-PC.3
    1. Answer research questions using digital information resources. SC.68.CS-PC.3.1
    2. Analyze how media and technology can be used to distort, exaggerate, or misrepresent information. SC.68.CS-PC.3.2
    3. Describe strategies for determining the reliability of resources or information on the Internet. SC.68.CS-PC.3.3
    4. Identify peer reviewed resources and understand the need for peer review. SC.68.CS-PC.3.4
    5. Identify resources such as city, state, and federal government websites and explain that these resources can be used for communication between citizens and government. SC.68.CS-PC.3.5
4. **Security, privacy, information sharing, ownership, licensure and copyright** SC.CS-PC.4
    1. Explain the guidelines for the fair use of downloading, sharing or modifying of digital materials. SC.68.CS-PC.4.1
    2. Explain how copyright law and licensing protect the owner of intellectual properties. SC.68.CS-PC.4.2
    3. Explain the possible consequences of violating intellectual property law. SC.68.CS-PC.4.3
    4. Identify threats and actions that protect devices from viruses, intrusion, vandalism, and other malicious activities. SC.68.CS-PC.4.4
    5. Demonstrate compliance with the school's Acceptable Use Policy. SC.68.CS-PC.4.5
    6. Generate text and non-text citations using digital citation tool. SC.68.CS-PC.4.6

Communication and Collaboration SC.CS-CC

1. **Communication and collaboration** SC.CS-CC.1
    1. Demonstrate an ability to communicate appropriately through various online tools. SC.68.CS-CC.1.1
    2. Apply productivity and or multimedia tools for local and global group collaboration. SC.68.CS-CC.1.2
    3. Design, develop, and publish a collaborative digital product using a variety of digital tools and media-rich resources that demonstrate and communicate concepts to inform, persuade, and/or entertain. SC.68.CS-CC.1.3

Communication Systems and Computing SC.CS-CS

1. **Modeling and Simulations** SC.CS-CS.1
    1. Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions. SC.68.CS-CS.1.1
    2. Create or modify and use a simulation to analyze and illustrate a concept in depth (i.e., use a simulation to illustrate a genetic variation), individually and collaboratively. SC.68.CS-CS.1.2
    3. Evaluate what kinds of real-world problems can be solved using modeling and simulation. SC.68.CS-CS.1.3
    4. Interact with content-specific models and simulations to support learning, research and problem solving (e.g., immigration, international trade, invasive species). SC.68.CS-CS.1.4

2. **Problem solving and Algorithms** SC.CS-CS.2

    1. Create, modify, and use a database (e.g., define field formats, adding new records, manipulate data) to analyze data and propose solutions for a task/problem, individually and collaboratively. SC.68.CS-CS.2.1
    2. Solve real life issues in science and engineering (i.e., generalize a solution to open-ended problems) using computational thinking skills. SC.68.CS-CS.2.2
    3. Perform a variety of operations such as sorting, filtering, and searching in a database. SC.68.CS-CS.2.3
    4. Organize and display information in a variety of ways such as number formats (e.g., scientific notation, percentages, and exponents), charts, tables and graphs. SC.68.CS-CS.2.4
    5. Decompose a problem and create a function for one of its parts at a time (e.g., video game, robot obstacle course, making dinner), individually and collaboratively. SC.68.CS-CS.2.5
    6. Create a program that implements an algorithm to achieve a given goal, individually and collaboratively. SC.68.CS-CS.2.6
    7. Design solutions that use repetition and two-way selection (e.g., FOR, WHILE, IF/ELSE). SC.68.CS-CS.2.7
    8. Recognize that boundaries need to be taken into account for an algorithm to produce correct results. SC.68.CS-CS.2.8
    9. Identify simple data types and data structures. SC.68.CS-CS.2.9
    10. Recognize that more than one algorithm can solve a given problem. SC.68.CS-CS.2.10
    11. Predict outputs while showing an understanding of inputs. SC.68.CS-CS.2.11
    12. Select the 'best' algorithm based on a given criteria (e.g., time, resource, and accessibility) to solve a problem, individually and collaboratively. SC.68.CS-CS.2.12
    13. Explore a problem domain using iterative development and debugging. SC.68.CS-CS.2.13
    14. Perform program tracing to predict the behavior of programs. SC.68.CS-CS.2.14

3. **Digital tools** SC.CS-CS.3

    1. Explain why different file types exist (e.g., formats for word processing, images, music, and three-dimensional drawings). SC.68.CS-CS.3.1
    2. Identify the kinds of content associated with different file types. SC.68.CS-CS.3.2
    3. Integrate information from multiple file formats into a single artifact. SC.68.CS-CS.3.3

4. **Hardware and software** SC.CS-CS.4
    1. Identify and describe the function of the main internal parts of a basic computing device (e.g., motherboard, hard drive, Central Processing Unit -CPU). SC.68.CS-CS.4.1
    2. Describe the main functions of an operating system and explain how an operating system provides user and system services (e.g., user interface, IO device management, task management). SC.68.CS-CS.4.2
    3. Describe the relationships between hardware and software (e.g., BIOS, operating systems and firmware). SC.68.CS-CS.4.3
    4. Identify and describe the use of sensors, actuators, and control systems in an embodied system (e.g., a robot, an e-textile, installation art, and a smart room). SC.68.CS-CS.4.4
    5. Evaluate a hardware or software problem and construct the steps involved in diagnosing and solving the problem (e.g., power, connections, application window or toolbar, cables, ports, network resources, video, and sound). SC.68.CS-CS.4.5
    6. Describe the essential characteristics of a software artifact. SC.68.CS-CS.4.6
    7. Describe the major components and functions of computer systems and networks. SC.68.CS-CS.4.7
    8. Identify software used to support specialized forms of human-computer interaction. SC.68.CS-CS.4.8
5. **Network systems** SC.CS-CS.5
    1. Describe how information, both text and non-text, is translated and communicated between digital computers over a computer network. SC.68.CS-CS.5.1
    2. Explain the difference between physical (wired), local area wireless, and mobile networks. SC.68.CS-CS.5.2
    3. Identify the major components of a network. SC.68.CS-CS.5.3
6. **Human–Computer interactions and Artificial Intelligence** SC.CS-CS.6
    1. Explain why some tasks can be accomplished more easily by computers. SC.68.CS-CS.6.1
    2. Describe how humans and machines interact to accomplish tasks that cannot be accomplished by either alone. SC.68.CS-CS.6.2
    3. Identify novel ways humans interact with computers, including software, probes, sensors, and handheld devices. SC.68.CS-CS.6.3
    4. Describe ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision). SC.68.CS-CS.6.4
    5. Identify factors that distinguish humans from machines. SC.68.CS-CS.6.5
    6. Design and demonstrate the use of a device (e.g., robot, e-textile) to accomplish a task, individually and collaboratively. SC.68.CS-CS.6.6

Computer Practices and Programming SC.CS-CP

1. **Data Analysis** SC.CS-CP.1
    1. Define parameters for individual and collaborative projects using Boolean logic (e.g., using "not", "or", "and"). SC.68.CS-CP.1.1
    2. Select and use data-collection technology (e.g., probes, handheld devices, geographic mapping systems and output from multiple runs of a computer program) to gather, view, organize, analyze, and report results for content-related problems, individually and collaboratively. SC.68.CS-CP.1.2

2. **Computer Programming Basics** SC.CS-CP.2
    1. Develop problem solutions using visual representations of problem states, structures and data. SC.68.CS-CP.2.1
    2. Evaluate the logical flow of a step-by-step program by acting it out through computer-free activities. SC.68.CS-CP.2.2
    3. Develop problem solutions using a block programming language, including all of the following: looping behavior, conditional statements, expressions, variables, and functions. SC.68.CS-CP.2.3
    4. Develop problem solutions using a programming language, including all of the following: looping behavior, conditional statements, expressions, variables, and functions. SC.68.CS-CP.2.4

3. **Programming Applications** SC.CS-CP.3
    1. Select appropriate tools and technology resources to accomplish a variety of tasks and solve problems. SC.68.CS-CP.3.1
    2. Create online content (e.g., webpage, blog, digital portfolio, multimedia), using advanced design tools. SC.68.CS-CP.3.2
    3. Create an artifact (independently and collaboratively) that answers a research question and communicates results and conclusions. SC.68.CS-CP.3.3