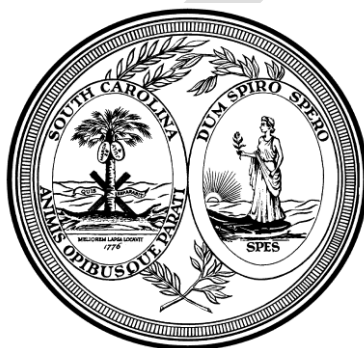


# South Carolina Computer Science and Digital Literacy Standards



South Carolina  
Department of Education  
Columbia, South Carolina  
2017

State Board of Education Approved – First Reading on **TBD**  
State Board of Education Approved – Second Reading on **TBD**

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# Explanation of Purpose and Process

## Purpose

*South Carolina Computer Science and Digital Literacy Standards* was developed to expand availability of computer science education to all students in South Carolina in response to the growing number of employment opportunities related to the field of computer science and related areas available in our state. All students in South Carolina in grades kindergarten through 8 should have the opportunity to learn all of the information outlined in this document.

## Process

*South Carolina Computer Science and Digital Literacy Standards* was developed by a diverse group of educators that included individuals who represented K – 12 classroom teachers, school and district administrators, parents, institutions of higher education, minorities, females, and students in poverty. The draft of the document was published online via the South Carolina Department of Education’s website for public review on November 30, 2016, and districts were notified of the public review period via memorandum on that date. The public was invited to provide feedback through January 15, 2017. The standards development process continued during the winter of 2017 as revisions were made to the document based on the data collected from educators, building-level administrators, district administrators, higher education representatives, parents, representatives from business and industry, and others during the public review period.

## Overview

*South Carolina Computer Science and Digital Literacy Standards* contains South Carolina Computer Science and Digital Literacy **Content Standards** that represent a balance of conceptual and procedural knowledge and specify the computer science content that students will master in each grade level. Additionally, *South Carolina Computer Science and Digital Literacy Standards* contains South Carolina Computer Science and Digital Literacy **Process Standards**, which describe the ways in which students will individually and collaboratively engage with the content standards. Therefore, instruction in each grade level must be based on both the South Carolina Computer Science and Digital Literacy Content Standards and the South Carolina Computer Science and Digital Literacy Process Standards.

The content standards and the process standards work together to enable all students to develop the world class knowledge, skills, and life and career characteristics identified in the *Profile of the South Carolina Graduate*. In *South Carolina Computer Science and Digital Literacy Standards*, the requisite world class knowledge is supported by the rigorous grade level content standards. The skills and life and career characteristics are identified in the South Carolina Computer Science and Digital Literacy Process Standards.

In order to ensure all students have the opportunity to learn all of the information outlined in this document, all curricular decisions made by districts, schools, and teachers should be based on the needs of students, the South Carolina Computer Science and Digital Literacy Content Standards, and the South Carolina Computer Science and Digital Literacy Process Standards.

### Organization and Format

Each grade level is divided into Key Concepts that organize the content into broad categories of related standards:

- Digital Literacy,
- Computing Systems,
- Networks and the Internet,
- Data and Analysis,
- Algorithms and Programming (grades 3 – 8), and
- Impact of Computing.

Each Key Concept contains standards and indicators that define what students should understand and be able to do. Standards are consistent across grade bands (i.e., grades kindergarten through 2, 3 through 5, and 6 through 8). Neither the order of Key Concepts nor the order of individual standards and indicators within a Key Concept is intended to prescribe an instructional sequence. For a comprehensive understanding, educators should always refer to the indicators and standards as they relate to each other.

Standards and indicators are coded using the method below.

GradeLevel.KeyConcept.StandardNumber.IndicatorNumber (e.g., K.CS.1.1)

## Terms

As used in the *South Carolina Computer Science and Digital Literacy Standards*, the following terms are defined to mean:

- *Including* references content that must be mastered, while *e.g.* and *such as* reference possible illustrative examples. The phrase *i.e.* references the only examples or terms that should be used.
- Real-world refers to authentic contexts through which students engage in computer science and should serve as a stepping-stone for thinking about important computer science concepts.

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# South Carolina Computer Science and Digital Literacy Process Standards

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

# Profile of the South Carolina Graduate



## World Class Knowledge

- Rigorous standards in language arts and math for career and college readiness
- Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences

## World Class Skills

- Creativity and innovation
- Critical thinking and problem solving
- Collaboration and teamwork
- Communication, information, media and technology
- Knowing how to learn

## Life and Career Characteristics

- Integrity
- Self-direction
- Global perspective
- Perseverance
- Work ethic
- Interpersonal skills

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## **Kindergarten:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

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  - d. Integrate constructive feedback while working in teams.
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  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
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  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
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  - a. Select and use appropriate technological tools to convey solutions to computing problems.
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  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

## Kindergarten:

# South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
Digital Literacy	<b>Standard 1:</b> Use software applications to create an authentic product.
	<b>The student will:</b>
	K.DL.1.1 Recognize a program to use for word processing.
	K.DL.1.2 Recognize a program to use for creating presentations.
	<b>Standard 2:</b> Learn the fundamentals of digital citizenship and appropriate use of digital media.
	<b>The student will:</b>
	K.DL.2.1 Understand safety rules when using a computing device.
	<b>Standard 3:</b> Exhibit responsibility when using connected computing devices.
	<b>The student will:</b>
	K.DL.3.1 Learn how to protect personal information (e.g., username, password).
	<b>Standard 4:</b> Demonstrate effective keyboarding skills on a computing device.
<b>The student will:</b>	
K.DL.4.1 Locate letter and number keys.	
Computing Systems	<b>Standard 1:</b> Understand that computing devices are used to perform a variety of tasks and take many forms.
	<b>The student will:</b>
	K.CS.1.1 Identify traditional computing devices (e.g., tablets, smartphones, desktops, laptops) and non-traditional computing devices (e.g., microwave, oven, car).
	K.CS.1.2 Recognize that people use computing devices to perform tasks.
	<b>Standard 2:</b> Explore hardware (i.e., physical components) and software of computing systems.
	<b>The student will:</b>
	K.CS.2.1 Use appropriate terminology in naming and identifying hardware (e.g., monitor, keyboard, mouse, earbuds, headphones, printer).
	K.CS.2.2 Learn to handle computing devices with proper care (e.g., do not place food or drink near a computer or tablet; hold tablets or laptops with both hands when transporting them).
	<b>Standard 3:</b> Recognize that computing systems might not work as expected because of hardware or software problems.
	<b>The student will:</b>
K.CS.3.1 Identify simple hardware problems (e.g., computer is not plugged into power source).	
Networks and the Internet	<b>Standard 1:</b> Discover that computing devices and the internet enable us to connect with other people, places, information, and ideas.
	<b>The student will:</b>
	K.NI.1.1 Recognize that people can communicate with others by using connected computing devices (e.g., cell phones, tablets).

<b>Data and Analysis</b>	<b>Standard 1:</b> Discover how data can be stored in and retrieved from multiple locations.
	<b>The student will:</b>
	K.DA.1.1 Recognize that data can be collected and stored on different computing devices over time (e.g., progress in a video game).
	K.DA.1.2 Recognize that data can be retrieved from different computing devices (e.g., progress in a video game; pictures from a smartphone).
	<b>Standard 2:</b> Explore how computing devices collect and display data.
	<b>The student will:</b>
	K.DA.2.1 Identify and give examples of data (e.g., lunch choice, weather conditions).
	<b>Standard 3:</b> Explore how data can be displayed for communication in many ways.
	<b>The student will:</b>
	K.DA.3.1 Recognize data displayed in picture graphs.
	<b>Standard 4:</b> Understand how data can be used to make decisions.
	<b>The student will:</b>
K.DA.4.1 Draw conclusions and make predictions from picture graphs (e.g., make predictions based on weather data presented in a picture graph).	
<b>Impact of Computing</b>	<b>Standard 1:</b> Understand how computing devices have changed people’s lives.
	<b>The student will:</b>
	K.IC.1.1 List different ways in which computing devices are used in your daily life.
	K.IC.1.2 Discover how some tasks can be completed with or without a computing device.
	<b>Standard 2:</b> Discover how computing devices have affected the way people communicate.
	<b>The student will:</b>
	K.IC.2.1 List different computing devices used for communication.

# Grade 1:

## South Carolina Computer Science and Digital Literacy Process Standards

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

# Grade 1:

## South Carolina Computer Science Digital Literacy Content Standards

Key Concepts	Standards
Digital Literacy	<b>Standard 1:</b> Use software applications to create an authentic product.
	<b>The student will:</b>
	1.DL.1.1 Produce a simple sentence using word processing software.
	1.DL.1.2 Create a simple presentation with text and/or image.
	<b>Standard 2:</b> Learn the fundamentals of digital citizenship and appropriate use of digital media.
	<b>The student will:</b>
	1.DL.2.1 Demonstrate appropriate behaviors towards others when using a connected computing device.
	1.DL.2.2 Recognize and avoid harmful behaviors (e.g., sharing private information).
	<b>Standard 3:</b> Exhibit responsibility when using connected computing devices.
	<b>The student will:</b>
	1.DL.3.1 Demonstrate how to log in and log out from a connected computing device.
	1.DL.3.2 Recognize the importance of logging out from a connected computing device.
	1.DL.3.3 Recognize the difference between public and private information (e.g., personal information).
	<b>Standard 4:</b> Demonstrate effective keyboarding skills on a computing device.
	<b>The student will:</b>
	1.DL.4.1 Locate and use letter and number keys.
1.DL.4.2 Demonstrate the location of the home row keys.	
1.DL.4.3 Develop proper keyboarding technique when keying letters and numbers (e.g., use both hands; utilize proper finger placement on home row keys; use letter and number keys).	

<b>Computing Systems</b>	<b>Standard 1:</b> Understand that computing devices are used to perform a variety of tasks and take many forms.
	<b>The student will:</b>
	1.CS.1.1 Identify tasks that can be performed with computing devices.
	1.CS.1.2 Recognize some computing devices (e.g., computer, smartphone) can perform a variety of tasks and some computing devices are specialized (e.g., navigation system, game controller).
	<b>Standard 2:</b> Explore hardware (i.e., physical components) and software of computing systems.
	<b>The student will:</b>
	1.CS.2.1 Use appropriate terminology in naming and identifying software (e.g., web browser, application).
	1.CS.2.2 Recognize that software acts on the input to affect the output (e.g., clicking on a mouse opens a program or application; typing on a keyboard displays letters on a screen).
	<b>Standard 3:</b> Recognize that computing systems might not work as expected because of hardware or software problems.
	<b>The student will:</b>
1.CS.3.1 Identify and describe simple hardware problems. (e.g., headphones, keyboard, and/or mouse not plugged into the correct port).	
1.CS.3.2 Identify and describe simple software problems (e.g., volume too soft/loud).	
<b>Networks and the Internet</b>	<b>Standard 1:</b> Discover that computing devices and the internet enable us to connect with other people, places, information, and ideas.
	<b>The student will:</b>
	1.NI.1.1 Recognize that the internet can be used to gather information.
	1.NI.1.2 Identify ways to connect with other people (e.g., direct message, voice talk, email, video chat).
<b>Data and Analysis</b>	<b>Standard 1:</b> Discover how data can be stored in and retrieved from multiple locations.
	<b>The student will:</b>
	1.DA.1.1 Recognize that a variety of data (e.g., music, video, images, text) can be stored and retrieved from a computing device.
	<b>Standard 2:</b> Explore how computing devices collect and display data.
	<b>The student will:</b>
	1.DA.2.1 Identify computing devices (e.g., digital thermometer, video game) that collect and display data.
	<b>Standard 3:</b> Explore how data can be displayed for communication in many ways.
	<b>The student will:</b>
	1.DA.3.1 Recognize data displayed in picture graphs, T-charts, tallies, and bar graphs.
	<b>Standard 4:</b> Understand how data can be used to make decisions.
<b>The student will:</b>	
1.DA.4.1 Draw conclusions and make predictions from different types of graphs (i.e., object graphs, picture graphs, bar graphs).	

<b>Impact of Computing</b>	<b>Standard 1:</b> Understand how computing devices have changed people’s lives.
	<b>The student will:</b>
	1.IC.1.1 Recognize that many different careers use computing devices.
	1.IC.1.2 Describe how some tasks can be completed with or without a computing device.
	<b>Standard 2:</b> Discover how computing devices have affected the way people communicate.
	<b>The student will:</b>
1.IC.2.1 Describe the different ways people can communicate using computing devices.	

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## **Grade 2:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.



## Grade 2:

# South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
Digital Literacy	<b>Standard 1:</b> Use software applications to create an authentic product.
	<b>The student will:</b>
	2.DL.1.1 Create text documents using a word processing program.
	2.DL.1.2 Format a text document using a word processing program (e.g., change font style, including underline, italicize, bold; change font size).
	2.DL.1.3 Create a multi-slide presentation with graphics or images using presentation software (e.g., create a new slide; rearrange slides).
	<b>Standard 2:</b> Learn the fundamentals of digital citizenship and appropriate use of digital media.
	<b>The student will:</b>
	2.DL.2.1 Demonstrate how to use appropriate behavior when sending messages online.
	2.DL.2.2 Recognize how to credit work found online (e.g., image, photograph).
	<b>Standard 3:</b> Exhibit responsibility when using connected computing devices.
	<b>The student will:</b>
	2.DL.3.1 Identify the characteristics of a strong password.
	2.DL.3.2 Discuss the effects of password misuse.
	<b>Standard 4:</b> Demonstrate effective keyboarding skills on a computing device.
	<b>The student will:</b>
	2.DL.4.1 Locate and use letter, number, and punctuation keys.
2.DL.4.2 Demonstrate the use of function keys (e.g., shift, enter, backspace, delete, spacebar)	
2.DL.4.3 Develop proper keyboarding technique when keying letters, numbers, and symbols (e.g., use both hands; utilize proper finger placement on home row keys; use letter, number, and punctuation keys).	

<b>Computing Systems</b>	<b>Standard 1:</b> Understand that computing devices are used to perform a variety of tasks and take many forms.
	<b>The student will:</b>
	2.CS.1.1 Classify computing devices according to purpose (e.g., navigation, game, communication, all-purpose).
	2.CS.1.2 Recognize that computing devices have limitations (e.g., printing, screen size, mobility).
	2.CS.1.3 Choose the appropriate computing device to complete a given task.
	<b>Standard 2:</b> Explore hardware (i.e., physical components) and software of computing systems.
	<b>The student will:</b>
	2.CS.2.1 Describe the function of common computing devices and components (e.g., desktop computer, laptop computer, tablet, monitor, keyboard, mouse, printer).
	2.CS.2.2 Recognize software that controls computing devices (e.g., use an application to draw on the screen; use software to write a story or control robots).
	2.CS.2.3 Use appropriate hardware and software to complete a given task.
	<b>Standard 3:</b> Recognize that computing systems might not work as expected because of hardware or software problems.
	<b>The student will:</b>
2.CS.3.1 Recognize the difference between a simple hardware problem and a simple software problem (e.g., sound problem can mean headphones are unplugged (hardware) or sound is muted (software)).	
<b>Networks and the Internet</b>	<b>Standard 1:</b> Discover that computing devices and the internet enable us to connect with other people, places, information, and ideas.
	<b>The student will:</b>
	2.NI.1.1 Gather information from the internet with supervision.
	2.NI.1.2 Identify email as one way to communicate digitally.
	2.NI.1.3 Use technology to work cooperatively and collaboratively with peers, teachers, and others.

<b>Data and Analysis</b>	<b>Standard 1:</b> Discover how data can be stored in and retrieved from multiple locations.
	<b>The student will:</b>
	2.DA.1.1 Recognize where data is stored (i.e., on the computing device or elsewhere).
	2.DA.1.2 Store data (e.g., image, music) to a computing device.
	2.DA.1.3 Retrieve data (e.g., image, music) from a computing device.
	<b>Standard 2:</b> Explore how computing devices collect and display data.
	<b>The student will:</b>
	2.DA.2.1 Identify different ways and tools to collect data.
	2.DA.2.2 Collect, organize and display data using object graphs, picture graphs, and bar graphs.
	<b>Standard 3:</b> Explore how data can be displayed for communication in many ways.
	<b>The student will:</b>
	2.DA.3.1 Recognize how different data displays communicate information in different ways.
	2.DA.3.2 Transform data into a new representation (i.e., object graphs, picture graphs, bar graphs, charts).
	<b>Standard 4:</b> Understand how data can be used to make decisions.
<b>The student will:</b>	
2.DA.4.1 Draw conclusions and make predictions from different types of graphs (i.e., scaled picture graphs, scaled bar graphs).	
<b>Impact of Computing</b>	<b>Standard 1:</b> Understand how computing devices have changed people’s lives.
	<b>The student will:</b>
	2.IC.1.1 Identify the ways that computing has changed throughout society.
	2.IC.1.2 Demonstrate how some tasks can be completed with or without a computing device.
	<b>Standard 2:</b> Discover how computing devices have affected the way people communicate.
	<b>The student will:</b>
	2.IC.2.1 Explore similarities and differences between in-person and online communications.

## **Grade 3:**

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  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

## Grade 3: South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
<b>Digital Literacy</b>	<b>Standard 1:</b> Use software applications to create an authentic product.
	<b>The student will:</b>
	3.DL.1.1 Create documents (e.g., essays, letters) using a word processing program.
	3.DL.1.2 Edit and format a document using a word processing program to check spelling, change fonts, and change margins.
	3.DL.1.3 Format a presentation using presentation software to insert an image/video, change background colors, and change text color.
	3.DL.1.4 Understand that bullets are a way to organize a list.
	<b>Standard 2:</b> Demonstrate an awareness of fundamentals of digital citizenship.
	<b>The student will:</b>
	3.DL.2.1 Demonstrate proper digital etiquette appropriate to the medium (e.g., not using all capital letters in an email).
	3.DL.2.2 Recognize the disparity with regards to access to technology around the world and discuss ways in which digital equality may be reached.
	<b>Standard 3:</b> Demonstrate responsibility when using connected computing devices.
	<b>The student will:</b>
	3.DL.3.1 Understand the importance of acceptable use policies (e.g., to enforce safe internet usage among all members of the community).
	3.DL.3.2 Distinguish between online content that is open and free to use and content that is protected by copyright.
	3.DL.3.3 Understand the notion of "digital footprint" and the permanence and trackability associated with online communication (e.g., email, social media).
	<b>Standard 4:</b> Demonstrate effective keyboarding skills on a computing device.
	<b>The student will:</b>
	3.DL.4.1 Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 5 words per minute.
3.DL.4.2 Use software capabilities to correct errors.	

<b>Computing Systems</b>	<b>Standard 1:</b> Identify and analyze various components and functions of computing devices (e.g., tablets, laptops, smartphones).
	<b>The student will:</b>
	3.CS.1.1 Compare and contrast computing devices (e.g., tablets, laptops, smartphones).
	3.CS.1.2 Identify the parts of a computing device (e.g., input devices, output devices, processors).
	<b>Standard 2:</b> Analyze the various types and functions of software.
	<b>The student will:</b>
	3.CS.2.1 Identify actions (e.g., opening a file; closing a window) that are specific to an operating system (e.g., Windows, MacOS, Android, iOS).
	3.CS.2.2 Compare operating systems to application software (e.g., word processor, spreadsheet, presentation software, web browser).
	<b>Standard 3:</b> Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use.
	<b>The student will:</b>
	3.CS.3.1 Troubleshoot simple hardware problems that may occur during use (e.g., hardware is plugged in or batteries charged; sound is muted/unmuted).
3.CS.3.2 Troubleshoot simple software problems that may occur during use (e.g., refresh or close a web browser; close a program).	
<b>Networks and the Internet</b>	<b>Standard 1:</b> Explore different ways a computer connects to the internet and other computing devices.
	<b>The student will:</b>
	3.NI.1.1 Identify and distinguish between wireless and wired connections.
	<b>Standard 2:</b> Discover the advantages of internet applications.
	<b>The student will:</b>
	3.NI.2.1 Communicate electronically with others with support from peers, teachers, and others.
3.NI.2.2 Recognize particular websites as sources of research.	

<b>Data and Analysis</b>	<b>Standard 1:</b> Identify various ways in which data is stored and represented.
	<b>The student will:</b>
	3.DA.1.1 Understand the different types of data storage (e.g., flash drives, hard drives, cloud storage).
	3.DA.1.2 Identify various kinds of data (e.g., text, images, sounds, numbers).
	<b>Standard 2:</b> Collect, arrange, and represent data.
	<b>The student will:</b>
	3.DA.2.1 Discuss appropriate tools for collecting data.
	3.DA.2.2 Represent data with bar graphs.
	<b>Standard 3:</b> Interpret and analyze data and information.
	<b>The student will:</b>
	3.DA.3.1 Interpret and analyze given data (i.e., tables).
	<b>Standard 4:</b> Understand the accuracy of conclusions and how they are influenced by the amount of data collected.
<b>The student will:</b>	
3.DA.4.1 Draw conclusions from different types of graphs (i.e., scaled bar graphs, line plots).	
3.DA.4.2 Discuss factors that impact accuracy.	
<b>Algorithms and Programming</b>	<b>Standard 1:</b> Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms).
	<b>The student will:</b>
	3.AP.1.1 Describe a daily task as a sequence of steps.
	<b>Standard 2:</b> Use an ordered list of steps (i.e., sequential execution) and simple control structures.
	<b>The student will:</b>
	3.AP.2.1 Describe, using picture models, an ordered list of steps to perform a simple task.
	<b>Standard 3:</b> Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks.
	<b>The student will:</b>
	3.AP.3.1 Identify a simple task (e.g., eating breakfast; brushing your teeth; walking to the bus stop).
	3.AP.3.2 Identify a complex task (e.g., getting ready for school).
	<b>Standard 4:</b> Develop a program to express an idea or address a problem.
	<b>The student will:</b>
3.AP.4.1 Use picture directions to design a series of steps to complete a simple task.	
3.AP.4.2 Test a series of directions to successfully complete a simple task.	
<b>Impact of Computing</b>	<b>Standard 1:</b> Discuss how computing has impacted society.
	<b>The student will:</b>
	3.IC.1.1 List examples of how computing technology has changed and improved the way people live, work, and interact.
	<b>Standard 2:</b> Evaluate the relevance and appropriateness of electronic information sources.
	<b>The student will:</b>
3.IC.2.1 Identify and discuss the relevance and appropriateness of various electronic information sources (e.g., online databases such as Discus; web search engines).	

## **Grade 4:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.



## Grade 4:

# South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
<b>Digital Literacy</b>	<b>Standard 1:</b> Use software applications to create an authentic product.
	<b>The student will:</b>
	4.DL.1.1 Create various documents (e.g., essays, posters) using a word processing program and including graphics (e.g., images, headlines).
	4.DL.1.2 Edit and format a document using a word processing program to insert, delete and move material within the document.
	4.DL.1.3 Format a presentation using presentation software to resize an image, change fonts, and change style.
	4.DL.1.4 Insert and modify a bulleted list in a word processor and presentation software.
	<b>Standard 2:</b> Demonstrate an awareness of fundamentals of digital citizenship.
	<b>The student will:</b>
	4.DL.2.1 Discuss methods for digital communication (e.g., email, instant messaging) and determine the best method for specific needs (e.g., quickly sending large amounts of information).
	4.DL.2.2 Recognize and describe the potential risks and benefits associated with various forms of digital communication.
	<b>Standard 3:</b> Demonstrate responsibility when using connected computing devices.
	<b>The student will:</b>
	4.DL.3.1 Identify cyberbullying and describe potential strategies to manage and eliminate cyberbullying.
	4.DL.3.2 Distinguish legal from illegal processes for downloading, sharing, and modifying online content.
	<b>Standard 4:</b> Demonstrate effective keyboarding skills on a computing device.
	<b>The student will:</b>
4.DL.4.1 Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 10 words per minute.	
4.DL.4.2 Use software capabilities to correct errors.	

<b>Computing Systems</b>	<b>Standard 1:</b> Identify and analyze various components and functions of computing devices (e.g., tablets, laptops, smartphones).
	<b>The student will:</b>
	4.CS.1.1 Describe what distinguishes humans from machines.
	4.CS.1.2 Identify a variety of computing devices and their functionality (e.g., mobility; available applications such as word processing; communication).
	4.CS.1.3 Describe the major hardware components (e.g., memory, processor) of a computing device (e.g., tablets, laptops, smartphones).
	<b>Standard 2:</b> Analyze the various types and functions of software.
	<b>The student will:</b>
	4.CS.2.1 Explore the limitations of and advantages of various computing devices for particular uses.
	4.CS.2.2 Explore application software (e.g., word processor, spreadsheet, presentation software, web browser).
	<b>Standard 3:</b> Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use.
	<b>The student will:</b>
	4.CS.3.1 Reboot a computing device correctly.
	4.CS.3.2 Identify whether the operating system or an application is the source of an error message.
4.CS.3.3 Identify and describe the causes of hardware (e.g., wiring), connectivity (e.g., no internet connection), and software (e.g., frozen screen) problems.	
<b>Networks and the Internet</b>	<b>Standard 1:</b> Explore different ways a computer connects to the internet and other computing devices.
	<b>The student will:</b>
	4.NI.1.1 Identify types of wireless and wired connections (e.g., Wi-Fi, cellular).
	<b>Standard 2:</b> Discover the advantages of internet applications.
	<b>The student will:</b>
	4.NI.2.1 Identify the appropriate use of email as a communication avenue.
	4.NI.2.2 Effectively use search engines to find information.
4.NI.2.3 Identify websites that are appropriate sources of research.	

<b>Data and Analysis</b>	<b>Standard 1:</b> Identify various ways in which data is stored and represented.
	<b>The student will:</b>
	4.DA.1.1 Understand what it means to save a file in well-protected storage (e.g., hard drive, flash drive, cloud).
	4.DA.1.2 Understand that computing devices have their own language (i.e., binary).
	<b>Standard 2:</b> Collect, arrange, and represent data.
	<b>The student will:</b>
	4.DA.2.1 Select and use appropriate non-digital and digital tools for collecting data.
	4.DA.2.2 Represent data with bar graphs and line plots.
	<b>Standard 3:</b> Interpret and analyze data and information.
	<b>The student will:</b>
	4.DA.3.1 Interpret and analyze given graphs (i.e., bar graphs, line plots).
	<b>Standard 4:</b> Understand the accuracy of conclusions and how they are influenced by the amount of data collected.
<b>The student will:</b>	
4.DA.4.1 Apply factors that impact the accuracy of a conclusion.	
<b>Algorithms and Programming</b>	<b>Standard 1:</b> Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms).
	<b>The student will:</b>
	4.AP.1.1 Use step-by-step instructions to perform tasks (i.e., sequential execution).
	<b>Standard 2:</b> Use an ordered list of steps (i.e., sequential execution) and simple control structures.
	<b>The student will:</b>
	4.AP.2.1 Use a combination of picture models to reorder a sequence of steps.
	4.AP.2.2 Recognize that the same steps can be ordered in different ways to perform the same task (i.e., simple control structures).
	<b>Standard 3:</b> Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks.
	<b>The student will:</b>
	4.AP.3.1 Compose simple tasks (e.g., eating breakfast; brushing your teeth; walking to the bus stop) into a complex task (e.g., getting ready for school).
	4.AP.3.2 Decompose a complex task (e.g., getting ready for school) into simple tasks (e.g., eating breakfast; brushing your teeth; walking to the bus stop).
	<b>Standard 4:</b> Develop a program to express an idea or address a problem.
	<b>The student will:</b>
	4.AP.4.1 Use picture directions to design a series of steps to complete a complex task.
4.AP.4.2 Test a series of directions to successfully complete a complex task.	

<b>Impact of Computing</b>	<b>Standard 1:</b> Discuss how computing has impacted society.
	<b>The student will:</b>
	4.IC.1.1 Compare and contrast how computing has changed society from the past to the present.
	<b>Standard 2:</b> Evaluate the relevance and appropriateness of electronic information sources.
	<b>The student will:</b>
4.IC.2.1 Compare the relevance and appropriateness of various electronic information sources (e.g., online databases such as Discus; web search engines).	

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## **Grade 5:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

## Grade 5:

# South Carolina Computer Science and Digital Literacy Content Standards

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

<b>Computing Systems</b>	<b>Standard 1:</b> Identify and analyze various components and functions of computing devices (e.g., tablets, laptops, smartphones).
	<b>The student will:</b>
	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.1.2 Explain the importance of the major hardware components of the computing device (e.g., input and output devices, processors).
	<b>Standard 2:</b> Analyze the various types and functions of software.
	<b>The student will:</b>
	5.CS.2.1 Justify the use of different computing devices for relevant tasks.
	5.CS.2.2 Explore and compare multiple software applications (e.g., word processor, spreadsheet, presentation software, web browser).
	<b>Standard 3:</b> Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use.
	<b>The student will:</b>
	5.CS.3.1 Respond appropriately to various error messages (e.g., “webpage not found;” “incorrect password”).
5.CS.3.2 Identify the computing device components that may cause various problems.	
<b>Networks and the Internet</b>	<b>Standard 1:</b> Explore different ways a computer connects to the internet and other computing devices.
	<b>The student will:</b>
	5.NI.1.1 Identify the advantages and disadvantages of various network types (e.g., wired, Wi-Fi, cellular data).
	<b>Standard 2:</b> Discover the advantages of internet applications.
	<b>The student will:</b>
	5.NI.2.1 Recognize video conferencing as a communication avenue.
	5.NI.2.2 Modify search criteria and use advanced search tactics to improve search results.
5.NI.2.3 Utilize websites that are appropriate sources of research.	

<b>Data and Analysis</b>	<b>Standard 1:</b> Identify various ways in which data is stored and represented.
	<b>The student will:</b>
	5.DA.1.1 Save and retrieve files on computing devices.
	5.DA.1.2 Recognize how text, images, and sounds are represented as binary numbers in computing devices.
	<b>Standard 2:</b> Collect, arrange, and represent data.
	<b>The student will:</b>
	5.DA.2.1 Compare and contrast tools for collecting data.
	5.DA.2.2 Determine the most effective way to represent a given data set (e.g., bar graphs, line plots).
	<b>Standard 3:</b> Interpret and analyze data and information.
	<b>The student will:</b>
	5.DA.3.1 Compare and contrast models (e.g., graphs, tables) for data analysis.
	<b>Standard 4:</b> Understand the accuracy of conclusions and how they are influenced by the amount of data collected.
<b>The student will:</b>	
5.DA.4.1 Discuss accuracy based on data available.	
<b>Algorithms and Programming</b>	<b>Standard 1:</b> Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms).
	<b>The student will:</b>
	5.AP.1.1 Execute a sequence of instructions (i.e., algorithm) that mimic a daily task.
	<b>Standard 2:</b> Use an ordered list of steps (i.e., sequential execution) and simple control structures.
	<b>The student will:</b>
	5.AP.2.1 Recognize that a sequence of steps can be repeated.
	5.AP.2.2 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).
	<b>Standard 3:</b> Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks.
	<b>The student will:</b>
	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.3.2 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).
	<b>Standard 4:</b> Develop a program to express an idea or address a problem.
<b>The student will:</b>	
5.AP.4.1 Use a visual language to design and test a program that solves a simple task (e.g., online coding activity).	



<b>Impact of Computing</b>	<b>Standard 1:</b> Discuss how computing has impacted society.
	<b>The student will:</b>
	5.IC.1.1 Discuss the positive and negative impacts of computing on society.
	<b>Standard 2:</b> Evaluate the relevance and appropriateness of electronic information sources.
	<b>The student will:</b>
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).	

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## **Grade 6:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

## Grade 6:

# South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
<b>Digital Literacy</b>	<b>Standard 1:</b> Use software applications to collaborate and create authentic products.
	<b>The student will:</b>
	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.1.2 Share documents created using word processing, presentation, and spreadsheet software via email attachments.
	6.DL.1.3 Use formulas in spreadsheets to perform real-world calculations (e.g., creating budgets).
	<b>Standard 2:</b> Understand risks and responsibilities of being a digital citizen.
	<b>The student will:</b>
	6.DL.2.1 Identify rules for safe internet use.
	6.DL.2.2 Identify appropriate use of social media (e.g., cyberbullying prevention).
	6.DL.2.3 Identify appropriate use of computing devices.
	<b>Standard 3:</b> Understand issues associated with appropriate use of personal digital information.
	<b>The student will:</b>
	6.DL.3.1 Define and identify personal digital information.
	6.DL.3.2 Identify consequences of inappropriate sharing of personal digital information.
<b>Standard 4:</b> Demonstrate keyboarding speed and accuracy on a computing device.	
<b>The student will:</b>	
6.DL.4.1 Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 20 words per minute.	
<b>Computing Systems</b>	<b>Standard 1:</b> Analyze the use of computing to solve relevant problems.
	<b>The student will:</b>
	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.1.2 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).
	<b>Standard 2:</b> Examine how computing devices function.
	<b>The student will:</b>
	6.CS.2.1 Understand various ways software is acquired and installed.
	<b>Standard 3:</b> Evaluate various solutions to common hardware and software problems.
	<b>The student will:</b>
6.CS.3.1 Identify the source of a problem using a systematic process (i.e., troubleshooting).	

<b>Networks and the Internet</b>	<b>Standard 1:</b> Analyze various network structures and how data is transmitted.
	<b>The student will:</b>
	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.1.2 Define an IP address and show an example.
	6.NI.1.3 Identify a Uniform Resource Locator (URL).
	6.NI.1.4 Define a packet and explain how they are used to transmit data across a network.
	<b>Standard 2:</b> Identify methods to protect data, information, and computing devices across networks.
	<b>The student will:</b>
	6.NI.2.1 Identify common security risks associated with using computer networks (e.g., compromised passwords, phishing, viruses).
6.NI.2.2 Identify how individuals and organizations protect data and information from security risks associated with using computer networks.	
<b>Data and Analysis</b>	<b>Standard 1:</b> Evaluate the storage and representation of data.
	<b>The student will:</b>
	6.DA.1.1 Identify the file extensions (e.g., .ppt, .pdf, .mp3) associated with software programs.
	<b>Standard 2:</b> Analyze how data is collected with both computational and non-computational tools and processes.
	<b>The student will:</b>
	6.DA.2.1 Explore real-world data collection (e.g., identification number at lunch; teacher taking attendance; grocery store shopping card).
	<b>Standard 3:</b> Analyze various ways to visually represent data.
	<b>The student will:</b>
	6.DA.3.1 Explain how large data sets are represented graphically (e.g., frequency plots, bar graphs).
6.DA.3.2 Represent one set of numerical data (e.g., histograms, box plots, dot plots).	

<b>Algorithms and Programming</b>	<b>Standard 1:</b> Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).
	<b>The student will:</b>
	6.AP.1.1 Recognize that there are multiple ways to sequence instructions that can lead to the same result.
	6.AP.1.2 Interpret pseudocode and flowcharts.
	<b>Standard 2:</b> Use and compare simple coding control structures (e.g., if-then, loops).
	<b>The student will:</b>
	6.AP.2.1 Select appropriate coding control structures to skip or repeat instructions.
	<b>Standard 3:</b> Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts).
	<b>The student will:</b>
	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).
	<b>Standard 4:</b> Design and code programs to solve problems.
	<b>The student will:</b>
	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.
	<b>Standard 5:</b> Identify variables and compare the types of data stored as variables.
<b>The student will:</b>	
6.AP.5.1 Recognize variables that represent information (e.g., age, first name).	
6.AP.5.2 Recognize variables can represent different types of data (e.g., numbers, words, colors, images).	
<b>Impact of Computing</b>	<b>Standard 1:</b> Evaluate the tradeoffs of computing in everyday activities.
	<b>The student will:</b>
	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.1.2 Discover positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).
	<b>Standard 2:</b> Analyze various computing platforms used for communication.
	<b>The student will:</b>
	6.IC.2.1 Identify current communication methods and computing devices.
	<b>Standard 3:</b> Evaluate the tradeoffs in what and how information is shared digitally.
	<b>The student will:</b>
	6.IC.3.1 Identify guidelines for safely using the internet.
	<b>Standard 4:</b> Evaluate how legal and ethical issues shape computing practices.
<b>The student will:</b>	
6.IC.4.1 Identify unethical and illegal behavior.	

## **Grade 7:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

## Grade 7:

# South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
<b>Digital Literacy</b>	<b>Standard 1:</b> Use software applications to collaborate and create authentic products.
	<b>The student will:</b>
	7.DL.1.1 Collaborate in small groups to create and edit online documents in real time (e.g., multiple users editing one document in a shared online space).
	7.DL.1.2 Identify and use appropriate file sharing strategies (e.g., copy and paste, links, email attachments).
	7.DL.1.3 Apply appropriate design principles to presentations (e.g., themes, contrast, animations).
	<b>Standard 2:</b> Understand risks and responsibilities of being a digital citizen.
	<b>The student will:</b>
	7.DL.2.1 Discuss consequences of improper internet use.
	7.DL.2.2 Discuss consequences of improper use of social media (e.g., cyberbullying).
	<b>Standard 3:</b> Understand issues associated with appropriate use of personal digital information.
	<b>The student will:</b>
	7.DL.3.1 Identify appropriate methods for protecting personal digital information.
	<b>Standard 4:</b> Demonstrate keyboarding speed and accuracy on a computing device.
<b>The student will:</b>	
7.DL.4.1 Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 25 words per minute.	
<b>Computing Systems</b>	<b>Standard 1:</b> Analyze the use of computing to solve relevant problems.
	<b>The student will:</b>
	7.CS.1.1 Explore an expanded definition of computing devices (e.g., “Internet of Things,” wearable technology, robotics).
	7.CS.1.2 Analyze relevant problems and how they are solved using computer science and various types of computing devices (e.g., Global Positioning System (GPS) and online maps provide guided step-by-step directions to locations).
	<b>Standard 2:</b> Examine how computing devices function.
	<b>The student will:</b>
	7.CS.2.1 Describe processing speed and storage capacity using standard units of measure (e.g., 3 TB hard drive, 256 GB cell phone, 3.8 GHz processor).
	<b>Standard 3:</b> Evaluate various solutions to common hardware and software problems.
	<b>The student will:</b>
	7.CS.3.1 Understand and communicate solutions to various computing problems (e.g., computing device is frozen; webpage does not load; application does not launch; keyboard does not work).
7.CS.3.2 Understand how rebooting a computing device can solve problems.	

<b>Networks and the Internet</b>	<b>Standard 1:</b> Analyze various network structures and how data is transmitted.
	<b>The student will:</b>
	7.NI.1.1 Identify and compare types of networks (i.e., Local Area Networks (LANs) and Wide Area Networks (WANs)).
	7.NI.1.2 Define and understand how the internet is a network of Wide Area Networks (WANs).
	7.NI.1.3 Compare and contrast network topologies (e.g., ring, star, mesh).
	<b>Standard 2:</b> Identify methods to protect data, information, and computing devices across networks.
	<b>The student will:</b>
	7.NI.2.1 Identify software methods for protecting data transmitted across networks (e.g. anti-virus software).
7.NI.2.2 Identify physical methods for securing computing devices (e.g., biometric-thumb reader, computer lock, restricted access rooms, hardware firewall).	
<b>Data and Analysis</b>	<b>Standard 1:</b> Evaluate the storage and representation of data.
	<b>The student will:</b>
	7.DA.1.1 Describe how a picture, audio, and video are stored digitally (e.g., Red, Green, and Blue (RGB), pixels, .wav).
	<b>Standard 2:</b> Analyze how data is collected with both computational and non-computational tools and processes.
	<b>The student will:</b>
	7.DA.2.1 Identify computing devices that assist with data collection (i.e., thermometers, barcode scanners, biometrics, sensors, radio-frequency identification (RFID), wearable technology).
	<b>Standard 3:</b> Analyze various ways to visually represent data.
	<b>The student will:</b>
	7.DA.3.1 Create various graphical representations of large data sets (e.g., frequency plots, bar graphs, presentation software).
7.DA.3.2 Represent two sets of numerical data (e.g., histograms, box plots, dot plots).	



Algorithms and Programming

**Standard 1:** Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).

**The student will:**

7.AP.1.1 Write sequences of instructions for others to perform tasks.

7.AP.1.2 Suggest changes to the sequence of instructions that can lead to the same result (e.g., explore different ways to tying shoes).

7.AP.1.3 Write clear instructions using pseudocode.

**Standard 2:** Use and compare simple coding control structures (e.g., if-then, loops).

**The student will:**

7.AP.2.1 Write code using control structures to skip or repeat instructions.

**Standard 3:** Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts).

**The student will:**

7.AP.3.1 Decompose a problem into smaller parts.

7.AP.3.2 Identify 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 level).

**Standard 4:** Design and code programs to solve problems.

**The student will:**

7.AP.4.1 Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a moderately complex program that solves a problem.

**Standard 5:** Identify variables and compare the types of data stored as variables.

**The student will:**

7.AP.5.1 Identify variables as a representation for information.

7.AP.5.2 Discuss the differences between the types of data (e.g., characters, integers, decimals).

<b>Impact of Computing</b>	<b>Standard 1:</b> Evaluate the tradeoffs of computing in everyday activities.
	<b>The student will:</b>
	7.IC.1.1 Understand how computer science is and can be used to solve problems in students' daily lives (e.g., voter identification website, online tax filing).
	7.IC.1.2 Compare positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).
	<b>Standard 2:</b> Analyze various computing platforms used for communication.
	<b>The student will:</b>
	7.IC.2.1 Describe current communication methods and computing devices.
	<b>Standard 3:</b> Evaluate the tradeoffs in what and how information is shared digitally.
	<b>The student will:</b>
	7.IC.3.1 Understand precautions to protect personal information (i.e., password strength, anti-virus software).
	<b>Standard 4:</b> Evaluate how legal and ethical issues shape computing practices.
	<b>The student will:</b>
	7.IC.4.1 Understand the consequences of unethical and illegal behavior online (e.g., social media, gaming, cyberbullying).
	<b>Standard 5:</b> Understand the importance of access and equity in computing.
	<b>The student will:</b>
	7.IC.5.1 Discuss and understand factors that affect access to computing resources locally, nationally, and globally (e.g., geographical location, socioeconomic status, government structure).
	<b>Standard 6:</b> Explore computer science and computing-intensive careers.
<b>The student will:</b>	
7.IC.6.1 Explain how computer science plays a role in every industry.	
<b>Standard 7:</b> Evaluate the history of computers and computing.	
<b>The student will:</b>	
7.IC.7.1 Understand and communicate the changes in computing and computer science over time.	
7.IC.7.2 Understand and communicate the history and development of the internet.	

## **Grade 8:**

# **South Carolina Computer Science and Digital Literacy Process Standards**

The South Carolina Computer Science and Digital Literacy Process Standards should be integrated into every grade level within the South Carolina Computer Science and Digital Literacy Content Standards. Because the Process Standards drive the pedagogical component of teaching and serve as the means by which students should demonstrate understanding of the content standards, the process standards must be incorporated as an integral part of overall student expectations when assessing content understanding.

A computer science literate student can:

1. Foster an inclusive computing culture.
  - a. Recognize that equitable access to computing benefits society as a whole.
  - b. Consider others' perspectives as well as one's own perspective when developing computational solutions.
  - c. Consider the needs of a variety of end users regarding accessibility and usability.
2. Collaborate around computing.
  - a. Select appropriate technological tools that can be used to collaborate on a project.
  - b. Collaborate productively with individuals of varying perspectives, skills, and backgrounds.
  - c. Set and implement equitable expectations and workloads when working in teams.
  - d. Integrate constructive feedback while working in teams.
3. Recognize, define, and analyze computational problems.
  - a. Recognize when it is appropriate to solve a problem computationally.
  - b. Make sense of computational problems and persevere in solving them.
  - c. Relate computational problems to prior knowledge.
  - d. Recognize that there may be multiple approaches to solving a problem.
  - e. Approach problem solving iteratively, using a cyclical process.
4. Create, test, and refine computational artifacts.
  - a. Consider the purpose of computational artifacts for practical use, personal expression, and/or societal impact.
  - b. Recognize when to use the same solution for multiple problems.
  - c. Test computational artifacts systematically by considering multiple scenarios and using test cases.
  - d. Approach troubleshooting systematically.
  - e. Consider performance, reliability, usability, and accessibility when evaluating and refining computational artifacts.
5. Communicate about computing.
  - a. Select and use appropriate technological tools to convey solutions to computing problems.
  - b. Communicate about computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.
  - c. Articulate ideas responsibly by observing intellectual property rights and giving appropriate attribution.

## Grade 8:

# South Carolina Computer Science and Digital Literacy Content Standards

Key Concepts	Standards
Digital Literacy	<b>Standard 1:</b> Use software applications to collaborate and create authentic products.
	<b>The student will:</b>
	8.DL.1.1 Produce documents according to industry standards (e.g., citation styles, agendas, financial statements, resumes).
	8.DL.1.2 Identify and use tabs in a word processing document (i.e., left, right, center, decimal).
	8.DL.1.3 Identify and use appropriate file compression techniques to (e.g., zipping folders and files; image and file compression).
	<b>Standard 2:</b> Understand risks and responsibilities of being a digital citizen.
	<b>The student will:</b>
	8.DL.2.1 Explore legal and ethical issues of improper computer and internet use (e.g., music, video, and software piracy; cyberbullying).
	<b>Standard 3:</b> Understand issues associated with appropriate use of personal digital information.
	<b>The student will:</b>
	8.DL.3.1 Explore real-world examples of appropriate and inappropriate sharing of personal digital information.
	<b>Standard 4:</b> Demonstrate keyboarding speed and accuracy on a computing device.
<b>The student will:</b>	
8.DL.4.1 Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 30 words per minute.	
Computing Systems	<b>Standard 1:</b> Analyze the use of computing to solve relevant problems.
	<b>The student will:</b>
	8.CS.1.1 Compare and contrast relevant problems and how they are solved using computer science and various types of computing devices (e.g., Global Positioning System (GPS) and online maps include different features, including real-time traffic, satellite images, construction and accident notifications).
	<b>Standard 2:</b> Examine how computing devices function.
	<b>The student will:</b>
	8.CS.2.1 Understand that computers receive and process data as a series of on and off signals (i.e., binary data).
	8.CS.2.2 Determine appropriate hardware, operating systems, and software based upon the needs of users in various career fields (e.g., computing devices used by professional video producers and students differ).
	<b>Standard 3:</b> Evaluate various solutions to common hardware and software problems.
	<b>The student will:</b>
	8.CS.3.1 Understand computer hardware and software compatibility (e.g., applications designed for Android devices cannot run on iOS devices).
8.CS.3.2 Identify appropriate resources for troubleshooting hardware and software problems (e.g., user manuals, online searches, technology support services).	

<b>Networks and the Internet</b>	<b>Standard 1:</b> Analyze various network structures and how data is transmitted.
	<b>The student will:</b>
	8.NI.1.1 Identify a protocol as a set of rules, and identify common protocols (e.g., Hypertext Transfer Protocol (HTTP), File Transfer Protocol (FTP), Internet Protocol (IP), Transmission Control Protocol (TCP)).
	8.NI.1.2 Diagram a small network using a switch and a router.
	8.NI.1.3 Identify the best network topology given a problem (e.g., mesh, tree, ring).
	<b>Standard 2:</b> Identify methods to protect data, information, and computing devices across networks.
	<b>The student will:</b>
	8.NI.2.1 Discuss and understand recent events and trends regarding cybercrimes (i.e., identity theft, hacking). 8.NI.2.2 Discuss and understand the impact of computing copyright issues (i.e., music and software piracy; plagiarism).
<b>Data and Analysis</b>	<b>Standard 1:</b> Evaluate the storage and representation of data.
	<b>The student will:</b>
	8.DA.1.1 Discuss how text, images, and sounds are represented using binary numbers in computing devices.
	8.DA.1.2 Compare and contrast characteristics of a variety of file formats (e.g., software compatibility, file size, compressed and uncompressed files, transparency).
	8.DA.1.3 Compare and contrast current storage mediums and their uses (e.g., flash drives, hard drives, networks, cloud).
	<b>Standard 2:</b> Analyze how data is collected with both computational and non-computational tools and processes.
	<b>The student will:</b>
	8.DA.2.1 Compare and contrast computing devices that assist with data collection (i.e., thermometers, barcode scanners, biometrics, sensors, radio-frequency identification (RFID), wearable technology).
	<b>Standard 3:</b> Analyze various ways to visually represent data.
	<b>The student will:</b>
	8.DA.3.1 Identify components of infographics that can be used to represent numerical data (e.g., scatterplots).
	8.DA.3.2 Make inferences based on collected data (e.g., online video watching history used to recommend new videos users may like).
	8.DA.3.3 Explain how models are used to predict specific behaviors and/or outcomes (e.g., weather data presented in a model used to predict future weather conditions and activity).

Algorithms and Programming

<b>Standard 1:</b> Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).
<b>The student will:</b>
8.AP.1.1 Modify a sequence of instructions to solve problems.
8.AP.1.2 Make changes to the sequence of instructions that can lead to the same result.
8.AP.1.3 Write clear instructions using flowcharts.
<b>Standard 2:</b> Use and compare simple coding control structures (e.g., if-then, loops).
<b>The student will:</b>
8.AP.2.1 Modify an algorithm using conditionals and iteration.
<b>Standard 3:</b> Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts).
<b>The student will:</b>
8.AP.3.1 Decompose a problem into functional parts.
8.AP.3.2 Compose a program with multiple parts.
<b>Standard 4:</b> Design and code programs to solve problems.
<b>The student will:</b>
8.AP.4.1 Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a complex program that solves a problem.
<b>Standard 5:</b> Identify variables and compare the types of data stored as variables.
<b>The student will:</b>
8.AP.5.1 Compare and contrast variables that change or are constant.
8.AP.5.2 Identify the variables needed to solve a given problem (i.e., information that needs to be tracked).

Impact of Computing

<b>Standard 1:</b> Evaluate the tradeoffs of computing in everyday activities.
<b>The student will:</b>
8.IC.1.1 Justify how computer science is and can be used to solve problems in students' daily lives (e.g., mobile applications to accomplish tasks or solve problems in a neighborhood; remote traffic control).
8.IC.1.2 Analyze positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).
<b>Standard 2:</b> Analyze various computing platforms used for communication.
<b>The student will:</b>
8.IC.2.1 Compare and contrast current communication methods and computing devices.
<b>Standard 3:</b> Evaluate the tradeoffs in what and how information is shared digitally.
<b>The student will:</b>
8.IC.3.1 Identify risks associated with sharing information digitally (e.g., phishing, identity theft, hacking).
<b>Standard 4:</b> Evaluate how legal and ethical issues shape computing practices.
<b>The student will:</b>
8.IC.4.1 Investigate recent laws that have been created to govern computer use (e.g., privacy, piracy, censorship, intellectual property).
<b>Standard 5:</b> Understand the importance of access and equity in computing.
<b>The student will:</b>
8.IC.5.1 Investigate historical and current trends of underrepresentation in computer science (e.g., race, ethnicity, gender, socioeconomic status).
8.IC.5.2 Recognize computer scientists from underrepresented populations who have advanced computing.
8.IC.5.3 Explain how the lack of diverse perspectives and backgrounds restricts possible solutions to computational problems (e.g., first iteration of Google Maps included only driving directions, but later public transit and walking directions were added).
<b>Standard 6:</b> Explore computer science and computing-intensive careers.
<b>The student will:</b>
8.IC.6.1 Identify traditional and nontraditional careers that use computer science (e.g., computer science in agriculture, medical, and public safety fields).
8.IC.6.2 Relate the five disciplines of computing (i.e., computer science, software engineering, information technology, information systems, and computer engineering) to careers in various industries (e.g., advancements in healthcare, national security, and transportation).
<b>Standard 7:</b> Evaluate the history of computers and computing.
<b>The student will:</b>
8.IC.7.1 Analyze the impact of computing and computer science over time (e.g., advantages such as faster, more efficient completion of tasks and access to the information; disadvantages such as fewer human jobs due to automation).
8.IC.7.2 Understand the historical impact and future potential of exponential growth in computing (i.e., Moore's Law).
8.IC.7.3 Identify and describe emerging technologies (e.g., virtual reality, biometrics, health monitoring systems).