Computer Science and Literacy: Scope and Sequence

Skills Checklist

Kindergarten

Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	I	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	I	✓	
Explore social and ethical impacts of technology	I	✓	
Recognize and describe the potential risks and dangers associated with online communication.	I	✓	
ISTE Standards for Students			
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	I	✓	
Computer Literacy			
Operate Basic Device Functionality			
Turn on the computer.	I	✓	
Login and logoff the computer.	I	✓	
Use a pointing device to click menus and icons.	I	✓	
Open programs, web apps, and documents.	I	✓	
Use buttons and media players.	I	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	I		
Identify major computer components.	I		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	I	✓	
Use painting/drawing tools and other applications to create and edit work.	I	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	I		
Perform basic searches on a database (e.g., library card catalog) to locate information.	I	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	I	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	I	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	I	✓	

Computer Science

Computing Systems			
Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.	I		
Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).	I		
Describe basic hardware and software problems using accurate terminology.	I		
Networks and the Internet			
Explain what passwords are and why we use them, and use strong passwords to protect devices and information from unauthorized access.	I		
Data and Analysis			
Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.	I	✓	
Collect and present the same data in various visual formats.	I	✓	
Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.	I	✓	
Algorithms and Programming			
Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.	I	✓	
Model the way programs store and manipulate data by using numbers or other symbols to represent information.	I		
Develop programs with sequences and simple loops, to express ideas or address a problem.	I		
Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.	I	✓	
Develop plans that describe a program's sequence of events, goals, and expected outcomes.	I		
Give attribution when using the ideas and creations of others while developing programs.	I		
Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.	I		
Using correct terminology, describe steps taken and choices made during the iterative process of program development.	I		
Impacts of Computing			
Compare how people live and work before and after the implementation or adoption of new computing technology.	I	✓	
Work respectfully and responsibly with others online.	I	✓	
Keep login information private, and log off of devices appropriately.	I	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 1 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	I	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	I	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	I	✓	
Explore social and ethical impacts of technology	I	✓	
Recognize and describe the potential risks and dangers associated with online communication.	I	✓	
ISTE Standards for Students			
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	I	✓	
Computer Literacy			
Operate Basic Device Functionality			
Turn on the computer.	I	✓	
Login and logoff the computer.	I	✓	
Use a pointing device to click menus and icons.	I	✓	
Open programs, web apps, and documents.	I	✓	
Use buttons and media players.	I	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	I		
Identify major computer components.	I		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	I	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	I	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	I	✓	
Highlight, copy, and paste text.	I	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	I	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	I	✓	
Spreadsheets			
Use mathematical symbols appropriately.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	I	✓	
Use painting/drawing tools and other applications to create and edit work.	I	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	I		
Identify careers and industry opportunities.	I	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	I	✓	
Use content-specific technology tools to gather and analyze data.	I	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	I	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	I	✓	
Communication and Collaboration			
Use a variety of age-appropriate technologies to communicate and exchange ideas.	I	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	I	✓	
Decompose a problem into smaller, more manageable parts.	I	✓	
Computer Science			
Computing Systems			
Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.	R		
Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).	R		
Describe basic hardware and software problems using accurate terminology.	R		
Networks and the Internet			
Explain what passwords are and why we use them, and use strong passwords to protect devices and information from unauthorized access.	R		
Data and Analysis			
Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.	R	✓	
Collect and present the same data in various visual formats.	R	✓	
Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.	R	✓	
Algorithms and Programming			
Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.	R	✓	
Model the way programs store and manipulate data by using numbers or other symbols to represent information.	R		
Develop programs with sequences and simple loops, to express ideas or address a problem.	R		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.	R	✓	
Develop plans that describe a program's sequence of events, goals, and expected outcomes.	R		
Give attribution when using the ideas and creations of others while developing programs.	R		
Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.	R		
Using correct terminology, describe steps taken and choices made during the iterative process of program development.	R		
Impacts of Computing			
Compare how people live and work before and after the implementation or adoption of new computing technology.	R	✓	
Work respectfully and responsibly with others online.	R	✓	
Keep login information private, and log off of devices appropriately.	R	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 2 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	I	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	I	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	I		
Identify cyberbullying and describe strategies to deal with such a situation.	I	✓	
Explore social and ethical impacts of technology	I	✓	
Recognize and describe the potential risks and dangers associated with online communication.	I	✓	
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	I	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	I		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	I	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	I	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	I		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	I		
Locate and use letter and number keys with left and right hand placement.	I		
Locate and use correct finger/hand for spacebar, enter, and shift key.	I		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	5 WPM		
File Management			
Organize files and folders.	I	✓	
Manage files and save documents.	I	✓	
Operate Basic Device Functionality			
Turn on the computer.	I	✓	
Login and logoff the computer.	I	✓	
Use a pointing device to click menus and icons.	I	✓	
Open programs, web apps, and documents.	I	✓	
Use buttons and media players.	I	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	I		
Identify major computer components.	I		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	I	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	I	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	I	✓	
Highlight, copy, and paste text.	I	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	I	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	I	✓	
Spreadsheets			
Demonstrate an understanding of recording, organizing, and graphing information.	I	✓	
Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	I	✓	
Use mathematical symbols appropriately.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	R	✓	
Use painting/drawing tools and other applications to create and edit work.	I	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	I		
Identify careers and industry opportunities.	I	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	I	✓	
Use content-specific technology tools to gather and analyze data.	I	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	I	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	I	✓	
Communication and Collaboration			
Collaborate using technology.	I	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	I	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	I	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	I	✓	
Computational Thinking			

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Create algorithms, or series of ordered steps, to solve problems.	I	✓	
Decompose a problem into smaller, more manageable parts.	I	✓	
Collect, analyze, and represent data effectively.	I	✓	
Computer Science			
Computing Systems			
Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.	M		
Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).	M		
Describe basic hardware and software problems using accurate terminology.	M		
Networks and the Internet			
Explain what passwords are and why we use them, and use strong passwords to protect devices and information from unauthorized access.	M		
Data and Analysis			
Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.	M	✓	
Collect and present the same data in various visual formats.	M	✓	
Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.	M	✓	
Algorithms and Programming			
Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.	M	✓	
Model the way programs store and manipulate data by using numbers or other symbols to represent information.	M		
Develop programs with sequences and simple loops, to express ideas or address a problem.	M		
Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.	M	✓	
Develop plans that describe a program's sequence of events, goals, and expected outcomes.	M		
Give attribution when using the ideas and creations of others while developing programs.	M		
Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.	M		
Using correct terminology, describe steps taken and choices made during the iterative process of program development.	M		
Impacts of Computing			
Compare how people live and work before and after the implementation or adoption of new computing technology.	M	✓	
Work respectfully and responsibly with others online.	M	✓	
Keep login information private, and log off of devices appropriately.	M	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 3 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	R	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	R	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	I		
Demonstrate safe email practices and appropriate email etiquette.	I	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	I	✓	
Explore social and ethical impacts of technology	R	✓	
Recognize and describe the potential risks and dangers associated with online communication.	R	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	I	✓	
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	I	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	I		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	R	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	I	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	I		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	I		
Locate and use letter and number keys with left and right hand placement.	I		
Locate and use correct finger/hand for spacebar, enter, and shift key.	I		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	10 WPM		
File Management			
Organize files and folders.	I	✓	
Manage files and save documents.	I	✓	
Operate Basic Device Functionality			
Turn on the computer.	R	✓	
Login and logoff the computer.	R	✓	
Use a pointing device to click menus and icons.	R	✓	
Open programs, web apps, and documents.	R	✓	
Use buttons and media players.	R	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	R		
Identify major computer components.	R		
Describe the major components and functions of computers and networks.	I		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	R	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	R	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	R	✓	
Highlight, copy, and paste text.	R	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	R	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	R	✓	
Spreadsheets			
Demonstrate an understanding of recording, organizing, and graphing information.	I	✓	
Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	I	✓	
Use mathematical symbols appropriately.	R	✓	
Presentation Tools			
Create, edit, and format text.	I	✓	
Create a series of slides and organize them to present research or convey data.	I	✓	
Copy, paste, insert, and resize images within the slides and from outside sources.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	R	✓	
Use painting/drawing tools and other applications to create and edit work.	R	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	R		
Identify careers and industry opportunities.	I	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	R	✓	
Use content-specific technology tools to gather and analyze data.	I	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	R	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Identify and explain current hardware and software trends.	I	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	R	✓	
Communication and Collaboration			
Collaborate using technology.	R	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	R	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	R	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	I	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	R	✓	
Decompose a problem into smaller, more manageable parts.	R	✓	
Collect, analyze, and represent data effectively.	I	✓	
Demonstrate an understanding of how information is represented, stored, and processed by a computer.	I	✓	
Computer Science			
Computing Systems			
Describe how internal and external parts of computing devices function to form a system.	I		
Model how computer hardware and software work together as a system to accomplish tasks.	I		
Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	I		
Networks and the Internet			
Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	I		
Discuss real-world cybersecurity problems and how personal information can be protected.	I		
Data and Analysis			
Organize and present collected data visually to highlight relationships and support a claim	I	✓	
Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.	I	✓	
Algorithms and Programming			
Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	I	✓	
Create programs that use variables to store and modify data.	I		
Create programs that include sequences, events, loops, and conditionals.	I		
Decompose (break down) problems into smaller, more manageable subproblems to facilitate the program development process.	I	✓	
Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.			
Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	I		
Observe intellectual property rights and give appropriate attribution when creating or remixing programs.	I		
Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	I		
Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	I		
Describe choices made during program development using code comments, presentations, and demonstrations.	I		
Impacts of Computing			
Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.	I	✓	
Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.	I		
Seek diverse perspectives for the purpose of improving computational artifacts.	I		
Use public domain or creative commons media, and refrain from copying or using material created by others without permission.	I	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 4 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	R	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	R	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	R		
Demonstrate safe email practices and appropriate email etiquette.	I	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	R	✓	
Explore social and ethical impacts of technology	R	✓	
Recognize and describe the potential risks and dangers associated with online communication.	R	✓	
Give examples of hardware and software that enable people with disabilities to use technology.	I	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	I	✓	
Explain the potential risks associated with the use of networked digital environments (Internet, cell phones, wireless networks) and sharing personal information.	I		
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	R	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	I		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	R	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	I	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	I		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	I		
Locate and use letter and number keys with left and right hand placement.	I		
Locate and use correct finger/hand for spacebar, enter, and shift key.	I		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	15 WPM		
File Management			
Organize files and folders.	R	✓	
Manage files and save documents.	R	✓	
Operate Basic Device Functionality			
Turn on the computer.	R	✓	
Login and logoff the computer.	R	✓	
Use a pointing device to click menus and icons.	R	✓	
Open programs, web apps, and documents.	R	✓	
Use buttons and media players.	R	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	R		
Identify major computer components.	R		
Describe the major components and functions of computers and networks.	I		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	R	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	R	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	R	✓	
Highlight, copy, and paste text.	R	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	R	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	R	✓	
Spreadsheets			
Demonstrate an understanding of recording, organizing, and graphing information.	R	✓	
Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	R	✓	
Use mathematical symbols appropriately.	R	✓	
Presentation Tools			
Create, edit, and format text.	I	✓	
Create a series of slides and organize them to present research or convey data.	I	✓	
Copy, paste, insert, and resize images within the slides and from outside sources.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	M	✓	
Watch videos and use play, pause, rewind, and forward buttons while taking notes.	I	✓	
Use painting/drawing tools and other applications to create and edit work.	R	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Create media for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	I	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	R		
Identify careers and industry opportunities.	I	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	R	✓	
Use content-specific technology tools to gather and analyze data.	I	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	R	✓	
Identify and explain current hardware and software trends.	I	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	R	✓	
Communication and Collaboration			
Collaborate using technology.	M	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	M	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	M	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	R	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	R	✓	
Decompose a problem into smaller, more manageable parts.	R	✓	
Collect, analyze, and represent data effectively.	R	✓	
Demonstrate an understanding of how information is represented, stored, and processed by a computer.	I	✓	
Computer Science			
Computing Systems			
Describe how internal and external parts of computing devices function to form a system.	R		
Model how computer hardware and software work together as a system to accomplish tasks.	R		
Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	R		
Networks and the Internet			
Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	R		
Discuss real-world cybersecurity problems and how personal information can be protected.	R		
Data and Analysis			
Organize and present collected data visually to highlight relationships and support a claim	R	✓	
Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.	R	✓	
Algorithms and Programming			
Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	R	✓	
Create programs that use variables to store and modify data.	R		
Create programs that include sequences, events, loops, and conditionals.	R		
Decompose (break down) problems into smaller, more manageable subproblems to facilitate the program development process.	R	✓	
Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.	R		
Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	R		
Observe intellectual property rights and give appropriate attribution when creating or remixing programs.	R		
Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	R		
Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	R		
Describe choices made during program development using code comments, presentations, and demonstrations.	R		
Impacts of Computing			
Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.	R	✓	
Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.	R		
Seek diverse perspectives for the purpose of improving computational artifacts.	R		
Use public domain or creative commons media, and refrain from copying or using material created by others without permission.	R	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 5 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	R	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	R	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	R		
Demonstrate safe email practices and appropriate email etiquette.	R	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	R	✓	
Explore social and ethical impacts of technology	M	✓	
Recognize and describe the potential risks and dangers associated with online communication.	M	✓	
Give examples of hardware and software that enable people with disabilities to use technology.	I	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	R	✓	
Explain the potential risks associated with the use of networked digital environments (Internet, cell phones, wireless networks) and sharing personal information.	I		
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	R	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	R		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	R	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	R	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	R		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	R		
Locate and use letter and number keys with left and right hand placement.	R		
Locate and use correct finger/hand for spacebar, enter, and shift key.	R		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	20 WPM		
File Management			
Organize files and folders.	R	✓	
Manage files and save documents.	R	✓	
Operate Basic Device Functionality			
Turn on the computer.	M	✓	
Login and logoff the computer.	M	✓	
Use a pointing device to click menus and icons.	M	✓	
Open programs, web apps, and documents.	M	✓	
Use buttons and media players.	M	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	M		
Troubleshoot basic hardware and software problems.	I	✓	
Identify major computer components.	R		
Describe the major components and functions of computers and networks.	R		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	R	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	M	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	M	✓	
Highlight, copy, and paste text.	M	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	M	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	M	✓	
Demonstrate the use of intermediate features in word processing applications (e.g., tabs, indents, bullets, numbers, tables, headers, footers).	I	✓	
Apply advanced formatting and page layout features when appropriate (e.g., columns, templates, styles) to improve the appearance of documents and projects.	I		
Spreadsheets			
Enter and edit data and perform calculations using formulas.	I	✓	
Demonstrate an understanding of recording, organizing, and graphing information.	R	✓	
Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	R	✓	
Use mathematical symbols appropriately.	M	✓	
Use spreadsheets to make predictions, solve problems, and draw conclusions.	I		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Use spreadsheets to calculate, graph, organize, and present data in a variety of real world settings.	I	✓	
Enter formulas and functions in spreadsheet applications.	I	✓	
Use and modify spreadsheets to analyze data and propose solutions.	I		
Use the functions and tools of a spreadsheet application (e.g., autofill, sort, filter, find).	I		
Presentation Tools			
Create, edit, and format text.	R	✓	
Create a series of slides and organize them to present research or convey data.	R	✓	
Copy, paste, insert, and resize images within the slides and from outside sources.	R	✓	
Create presentations for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	M	✓	
Watch videos and use play, pause, rewind, and forward buttons while taking notes.	I	✓	
Use painting/drawing tools and other applications to create and edit work.	R	✓	
Create media for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	I	✓	
Independently use appropriate technology tools (graphic organizers, audio, and video) to define problems and propose hypotheses.	I	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	M		
Identify careers and industry opportunities.	R	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	M	✓	
Use content-specific technology tools to gather and analyze data.	R	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	M	✓	
Identify and explain current hardware and software trends.	R	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	M	✓	
Communication and Collaboration			
Collaborate using technology.	M	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	M	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	M	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	R	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	R	✓	
Decompose a problem into smaller, more manageable parts.	M	✓	
Collect, analyze, and represent data effectively.	R	✓	
Demonstrate an understanding of how information is represented, stored, and processed by a computer.	I	✓	
Optimize an algorithm for execution by a computer.	I		

Computer Science

Computing Systems			
Describe how internal and external parts of computing devices function to form a system.	M		
Model how computer hardware and software work together as a system to accomplish tasks.	M		
Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	M		
Networks and the Internet			
Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	M		
Discuss real-world cybersecurity problems and how personal information can be protected.	M		
Data and Analysis			
Organize and present collected data visually to highlight relationships and support a claim	M	✓	
Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.	M	✓	
Algorithms and Programming			
Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	M	✓	
Create programs that use variables to store and modify data.	M		
Create programs that include sequences, events, loops, and conditionals.	M		
Decompose (break down) problems into smaller, more manageable subproblems to facilitate the program development process.	M	✓	
Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.	M		
Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	M		
Observe intellectual property rights and give appropriate attribution when creating or remixing programs.	M		
Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	M		
Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	M		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Describe choices made during program development using code comments, presentations, and demonstrations.	M		
Impacts of Computing			
Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.	M	✓	
Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.	M		
Seek diverse perspectives for the purpose of improving computational artifacts.	M		
Use public domain or creative commons media, and refrain from copying or using material created by others without permission.	M	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 6 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	R	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	R	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	R		
Demonstrate safe email practices and appropriate email etiquette.	R	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	M	✓	
Explore social and ethical impacts of technology	M	✓	
Recognize and describe the potential risks and dangers associated with online communication.	M	✓	
Give examples of hardware and software that enable people with disabilities to use technology.	R	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	R	✓	
Explain the potential risks associated with the use of networked digital environments (Internet, cell phones, wireless networks) and sharing personal information.	R		
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	R	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	R		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	R	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	R	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	R		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	R		
Locate and use letter and number keys with left and right hand placement.	R		
Locate and use correct finger/hand for spacebar, enter, and shift key.	R		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	25 WPM		
File Management			
Organize files and folders.	M	✓	
Manage files and save documents.	M	✓	
Operate Basic Device Functionality			
Turn on the computer.	M	✓	
Login and logoff the computer.	M	✓	
Use a pointing device to click menus and icons.	M	✓	
Open programs, web apps, and documents.	M	✓	
Use buttons and media players.	M	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	M		
Troubleshoot basic hardware and software problems.	I	✓	
Identify major computer components.	R		
Describe the major components and functions of computers and networks.	R		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	R	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	M	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	M	✓	
Highlight, copy, and paste text.	M	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	M	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	M	✓	
Demonstrate the use of intermediate features in word processing applications (e.g., tabs, indents, bullets, numbers, tables, headers, footers).	I	✓	
Apply advanced formatting and page layout features when appropriate (e.g., columns, templates, styles) to improve the appearance of documents and projects.	I		
Use the comment function in review for peer editing.	I	✓	
Use the track changes feature in review for peer editing of documents.	I	✓	
Spreadsheets			
Enter and edit data and perform calculations using formulas.	I	✓	
Demonstrate an understanding of recording, organizing, and graphing information.	R	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	R	✓	
Use mathematical symbols appropriately.	M	✓	
Use spreadsheets to make predictions, solve problems, and draw conclusions.	I		
Use spreadsheets to calculate, graph, organize, and present data in a variety of real world settings.	I	✓	
Enter formulas and functions in spreadsheet applications.	I	✓	
Use and modify spreadsheets to analyze data and propose solutions.	I		
Use the functions and tools of a spreadsheet application (e.g., autofill, sort, filter, find).	I		
Presentation Tools			
Create, edit, and format text.	R	✓	
Create a series of slides and organize them to present research or convey data.	R	✓	
Copy, paste, insert, and resize images within the slides and from outside sources.	R	✓	
Create presentations for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	I	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	M	✓	
Watch videos and use play, pause, rewind, and forward buttons while taking notes.	R	✓	
Use painting/drawing tools and other applications to create and edit work.	M	✓	
Create media for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	R	✓	
Independently use appropriate technology tools (graphic organizers, audio, and video) to define problems and propose hypotheses.	I	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	M		
Identify careers and industry opportunities.	R	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	M	✓	
Use content-specific technology tools to gather and analyze data.	R	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	M	✓	
Identify and explain current hardware and software trends.	R	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	M	✓	
Communication and Collaboration			
Collaborate using technology.	M	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	M	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	M	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	R	✓	
Plan and implement a collaborative project with other students using technology tools (e.g., email, discussion forums, video conference).	I	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	M	✓	
Decompose a problem into smaller, more manageable parts.	M	✓	
Collect, analyze, and represent data effectively.	R	✓	
Demonstrate an understanding of how information is represented, stored, and processed by a computer.	R	✓	
Optimize an algorithm for execution by a computer.	I		
Create simulations/models to understand natural phenomena and test hypotheses.	I	✓	
Computer Science			
Computing Systems			
Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	I		
Design projects that combine hardware and software components to collect and exchange data.	I		
Systematically identify and fix problems with computing devices and their components.	I		
Networks and the Internet			
Model the role of protocols in transmitting data across networks and the Internet.	I		
Explain how physical and digital security measures protect electronic information.	I		
Apply multiple methods of encryption to model the secure transmission of information.	I		
Data and Analysis			
Represent data using multiple encoding schemes.	I		
Collect data using computational tools and transform the data to make it more useful and reliable.	I		
Refine computational models based on the data they have generated.	I		
Algorithms and Programming			
Use flowcharts and/or pseudocode to address complex problems as algorithms.	I		
Create clearly named variables that represent different data types and perform operations on their values.	I		
Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	I		
Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	I		
Create procedures with parameters to organize code and make it easier to reuse.	I		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	I		
Incorporate existing code, media, and libraries into original programs, and give attribution.	I		
Systematically test and refine programs using a range of test cases.	I		
Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	I		
Document programs in order to make them easier to follow, test, and debug.	I		
Impacts of Computing			
Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	I		
Discuss issues of bias and accessibility in the design of existing technologies.	I		
Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	I		
Describe tradeoffs between allowing information to be public and keeping information private and secure.	I	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 7 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	M	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	M	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	M		
Demonstrate safe email practices and appropriate email etiquette.	M	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	M	✓	
Explore social and ethical impacts of technology	M	✓	
Recognize and describe the potential risks and dangers associated with online communication.	M	✓	
Give examples of hardware and software that enable people with disabilities to use technology.	R	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	R	✓	
Explain the potential risks associated with the use of networked digital environments (Internet, cell phones, wireless networks) and sharing personal information.	R		
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	M	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	M		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	M	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	M	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	M		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	R		
Locate and use letter and number keys with left and right hand placement.	R		
Locate and use correct finger/hand for spacebar, enter, and shift key.	R		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	30 WPM		
File Management			
Organize files and folders.	M	✓	
Manage files and save documents.	M	✓	
Operate Basic Device Functionality			
Turn on the computer.	M	✓	
Login and logoff the computer.	M	✓	
Use a pointing device to click menus and icons.	M	✓	
Open programs, web apps, and documents.	M	✓	
Use buttons and media players.	M	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	M		
Troubleshoot basic hardware and software problems.	R	✓	
Identify major computer components.	R		
Describe the major components and functions of computers and networks.	R		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	R	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	M	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	M	✓	
Highlight, copy, and paste text.	M	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	M	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	M	✓	
Demonstrate the use of intermediate features in word processing applications (e.g., tabs, indents, bullets, numbers, tables, headers, footers).	R	✓	
Apply advanced formatting and page layout features when appropriate (e.g., columns, templates, styles) to improve the appearance of documents and projects.	R		
Use the comment function in review for peer editing.	R	✓	
Use the track changes feature in review for peer editing of documents.	R	✓	
Spreadsheets			
Enter and edit data and perform calculations using formulas.	R	✓	
Demonstrate an understanding of recording, organizing, and graphing information.	M	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	M	✓	
Use mathematical symbols appropriately.	M	✓	
Use spreadsheets to make predictions, solve problems, and draw conclusions.	R		
Use spreadsheets to calculate, graph, organize, and present data in a variety of real world settings.	R	✓	
Enter formulas and functions in spreadsheet applications.	R	✓	
Use and modify spreadsheets to analyze data and propose solutions.	R		
Use the functions and tools of a spreadsheet application (e.g., autofill, sort, filter, find).	R		
Presentation Tools			
Create, edit, and format text.	M	✓	
Create a series of slides and organize them to present research or convey data.	M	✓	
Copy, paste, insert, and resize images within the slides and from outside sources.	M	✓	
Create presentations for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	R	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	M	✓	
Watch videos and use play, pause, rewind, and forward buttons while taking notes.	R	✓	
Use painting/drawing tools and other applications to create and edit work.	M	✓	
Create media for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	R	✓	
Independently use appropriate technology tools (graphic organizers, audio, and video) to define problems and propose hypotheses.	R	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	M		
Identify careers and industry opportunities.	M	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	M	✓	
Use content-specific technology tools to gather and analyze data.	M	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	M	✓	
Identify and explain current hardware and software trends.	R	✓	
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they rank results.	I		
Write correct in-text citations and reference lists for text and images gathered from electronic sources.	I	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	M	✓	

Communication and Collaboration			
Collaborate using technology.	M	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	M	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	M	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	M	✓	
Plan and implement a collaborative project with other students using technology tools (e.g., email, discussion forums, video conference).	R	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	M	✓	
Decompose a problem into smaller, more manageable parts.	M	✓	
Collect, analyze, and represent data effectively.	M	✓	
Demonstrate an understanding of how information is represented, stored, and processed by a computer.	R	✓	
Optimize an algorithm for execution by a computer.	R		
Create simulations/models to understand natural phenomena and test hypotheses.	R	✓	
Evaluate algorithms by their efficiency, correctness, and clarity.	I	✓	

Computer Science

Computing Systems			
Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	R		
Design projects that combine hardware and software components to collect and exchange data.	R		
Systematically identify and fix problems with computing devices and their components.	R		
Networks and the Internet			
Model the role of protocols in transmitting data across networks and the Internet.	R		
Explain how physical and digital security measures protect electronic information.	R		
Apply multiple methods of encryption to model the secure transmission of information.	R		
Data and Analysis			
Represent data using multiple encoding schemes.	R		
Collect data using computational tools and transform the data to make it more useful and reliable.	R		
Refine computational models based on the data they have generated.	R		
Algorithms and Programming			
Use flowcharts and/or pseudocode to address complex problems as algorithms.	R		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Create clearly named variables that represent different data types and perform operations on their values.	R		
Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	R		
Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	R		
Create procedures with parameters to organize code and make it easier to reuse.	R		
Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	R		
Incorporate existing code, media, and libraries into original programs, and give attribution.	R		
Systematically test and refine programs using a range of test cases.	R		
Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	R		
Document programs in order to make them easier to follow, test, and debug.	R		
Impacts of Computing			
Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	R		
Discuss issues of bias and accessibility in the design of existing technologies.	R		
Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	R		
Describe tradeoffs between allowing information to be public and keeping information private and secure.	R	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 8 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	M	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	M	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	M		
Demonstrate safe email practices and appropriate email etiquette.	M	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	M	✓	
Explore social and ethical impacts of technology	M	✓	
Recognize and describe the potential risks and dangers associated with online communication.	M	✓	
Give examples of hardware and software that enable people with disabilities to use technology.	M	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	M	✓	
Explain the potential risks associated with the use of networked digital environments (Internet, cell phones, wireless networks) and sharing personal information.	M		
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	M	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	M		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	M	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	M	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	M		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	M		
Locate and use letter and number keys with left and right hand placement.	M		
Locate and use correct finger/hand for spacebar, enter, and shift key.	M		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	35 WPM		
File Management			
Organize files and folders.	M	✓	
Manage files and save documents.	M	✓	
Operate Basic Device Functionality			
Turn on the computer.	M	✓	
Login and logoff the computer.	M	✓	
Use a pointing device to click menus and icons.	M	✓	
Open programs, web apps, and documents.	M	✓	
Use buttons and media players.	M	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	M		
Troubleshoot basic hardware and software problems.	R	✓	
Identify major computer components.	M		
Describe the major components and functions of computers and networks.	M		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	M	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	M	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	M	✓	
Highlight, copy, and paste text.	M	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	M	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	M	✓	
Demonstrate the use of intermediate features in word processing applications (e.g., tabs, indents, bullets, numbers, tables, headers, footers).	R	✓	
Apply advanced formatting and page layout features when appropriate (e.g., columns, templates, styles) to improve the appearance of documents and projects.	R		
Use the comment function in review for peer editing.	M	✓	
Use the track changes feature in review for peer editing of documents.	M	✓	
Spreadsheets			
Enter and edit data and perform calculations using formulas.	R	✓	
Demonstrate an understanding of recording, organizing, and graphing information.	M	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Identify and explain terms and concepts related to spreadsheets (e.g., cells, columns, rows, values, charts, graphs).	M	✓	
Use mathematical symbols appropriately.	M	✓	
Use spreadsheets to make predictions, solve problems, and draw conclusions.	R		
Use spreadsheets to calculate, graph, organize, and present data in a variety of real world settings.	R	✓	
Enter formulas and functions in spreadsheet applications.	R	✓	
Use and modify spreadsheets to analyze data and propose solutions.	R		
Use the functions and tools of a spreadsheet application (e.g., autofill, sort, filter, find).	R		
Presentation Tools			
Create, edit, and format text.	M	✓	
Create a series of slides and organize them to present research or convey data.	M	✓	
Copy, paste, insert, and resize images within the slides and from outside sources.	M	✓	
Create presentations for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	R	✓	
Digital Media			
Watch videos and use play, pause, rewind and forward buttons.	M	✓	
Watch videos and use play, pause, rewind, and forward buttons while taking notes.	M	✓	
Use painting/drawing tools and other applications to create and edit work.	M	✓	
Create media for a variety of audiences and purposes with the use of appropriate transitions and animations to add interest.	M	✓	
Independently use appropriate technology tools (graphic organizers, audio, and video) to define problems and propose hypotheses.	R	✓	
Research			
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they disseminate information.	M		
Identify careers and industry opportunities.	M	✓	
Perform basic searches on a database (e.g., library card catalog) to locate information.	M	✓	
Use content-specific technology tools to gather and analyze data.	M	✓	
Identify and analyze the purpose of a media message (inform, persuade, entertain).	M	✓	
Identify and explain current hardware and software trends.	M	✓	
Use Internet browsers, search engines, and online directories, compare the differences, and explain how they rank results.	R		
Write correct in-text citations and reference lists for text and images gathered from electronic sources.	R	✓	
Use Internet browsers to access information (e.g., enter a URL, access links, create bookmarks, print webpages).	M	✓	

Communication and Collaboration			
Collaborate using technology.	M	✓	
Use a variety of age-appropriate technologies to communicate and exchange ideas.	M	✓	
Create projects that use text, graphics, audio, and video to communicate ideas.	M	✓	
Evaluate presentations for organization, content, design, and appropriateness of citation.	M	✓	
Plan and implement a collaborative project with other students using technology tools (e.g., email, discussion forums, video conference).	M	✓	
Computational Thinking			
Create algorithms, or series of ordered steps, to solve problems.	M	✓	
Decompose a problem into smaller, more manageable parts.	M	✓	
Collect, analyze, and represent data effectively.	M	✓	
Demonstrate an understanding of how information is represented, stored, and processed by a computer.	M	✓	
Optimize an algorithm for execution by a computer.	R		
Create simulations/models to understand natural phenomena and test hypotheses.	R	✓	
Evaluate algorithms by their efficiency, correctness, and clarity.	R	✓	

Computer Science

Computing Systems			
Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	M		
Design projects that combine hardware and software components to collect and exchange data.	M		
Systematically identify and fix problems with computing devices and their components.	M		
Networks and the Internet			
Model the role of protocols in transmitting data across networks and the Internet.	M		
Explain how physical and digital security measures protect electronic information.	M		
Apply multiple methods of encryption to model the secure transmission of information.	M		
Data and Analysis			
Represent data using multiple encoding schemes.	M		
Collect data using computational tools and transform the data to make it more useful and reliable.	M		
Refine computational models based on the data they have generated.	M		
Algorithms and Programming			
Use flowcharts and/or pseudocode to address complex problems as algorithms.	M		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Create clearly named variables that represent different data types and perform operations on their values.	M		
Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	M		
Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	M		
Create procedures with parameters to organize code and make it easier to reuse.	M		
Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	M		
Incorporate existing code, media, and libraries into original programs, and give attribution.	M		
Systematically test and refine programs using a range of test cases.	M		
Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	M		
Document programs in order to make them easier to follow, test, and debug.	M		
Impacts of Computing			
Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	M		
Discuss issues of bias and accessibility in the design of existing technologies.	M		
Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	M		
Describe tradeoffs between allowing information to be public and keeping information private and secure.	M	✓	

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Grade 9 Standard	I/M/R	✓	← Standard may be integrated
Digital Citizenship		=	New concept
Responsible Use			
Demonstrate compliance of Responsible Use Policy and classroom rules regarding technology use and networks.	M	✓	
Explain responsible uses of technology and digital information and describe potential consequences for inappropriate use.	M	✓	
Identify and explain the strategies for the safe and efficient use of computers (passwords, virus protection software, etc.).	M		
Demonstrate safe email practices and appropriate email etiquette.	M	✓	
Identify cyberbullying and describe strategies to deal with such a situation.	M	✓	
Explore social and ethical impacts of technology	M	✓	
Recognize and describe the potential risks and dangers associated with online communication.	M	✓	
Give examples of hardware and software that enable people with disabilities to use technology.	M	✓	
Analyze and explain how media and data can be used to distort, exaggerate, and misinterpret information.	M	✓	
Explain the potential risks associated with the use of networked digital environments (Internet, cell phones, wireless networks) and sharing personal information.	M		
Copyright			
Explain fair use guidelines for copyrighted material (images, music, videos, etc.).	M	✓	
ISTE Standards for Students			
Students cultivate and manage their digital identify and are aware of the permanence of their actions in the digital world.	M		
Students engage in positive, safe, legal, and ethical behavior when using technology including social interactions online or when using networked devices.	M	✓	
Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	M	✓	
Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	M		
Computer Literacy			
Keyboarding			
Use proper posture and ergonomics.	M		
Locate and use letter and number keys with left and right hand placement.	M		
Locate and use correct finger/hand for spacebar, enter, and shift key.	M		
Gain proficiency and speed in keyboarding (type 5 WPM per grade level beginning at 2nd grade).	40 WPM		
File Management			
Organize files and folders.	M	✓	
Manage files and save documents.	M	✓	
Operate Basic Device Functionality			
Turn on the computer.	M	✓	
Login and logoff the computer.	M	✓	
Use a pointing device to click menus and icons.	M	✓	
Open programs, web apps, and documents.	M	✓	
Use buttons and media players.	M	✓	
Hardware and Software			
Demonstrate an understanding of the relationship between hardware and software.	M		
Troubleshoot basic hardware and software problems.	M	✓	
Identify major computer components.	M		
Describe the major components and functions of computers and networks.	M		
Apply strategies for identifying and solving routine problems that occur during everyday computer use.	M	✓	
Word Processing			
Write, edit, save, and print documents in one sitting.	M	✓	
Use menu/toolbar functions, such as font size, font style, and line spacing to format a document.	M	✓	
Highlight, copy, and paste text.	M	✓	
Copy, paste, insert, and resize images within the documents and from outside sources.	M	✓	
Proofread and edit writing using appropriate resources (spell checker, grammar checker, thesaurus).	M	✓	
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Computer Science and Literacy: Scope and Sequence

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Evaluate algorithms by their efficiency, correctness, and clarity.	M	✓	

Computer Science

Computing Systems			
Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	I		
Compare levels of abstraction and interactions between application software, system software, and hardware layers.	I		
Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	I		
Networks and the Internet			
Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.	I		
Give examples to illustrate how sensitive data can be affected by malware and other attacks.	I		
Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	I		
Compare various security measures, considering tradeoffs between the usability and security of a computing system.	I		
Explain tradeoffs when selecting and implementing cybersecurity recommendations.	I		
Data and Analysis			
Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.	I		

Computer Science and Literacy: Scope and Sequence

Skills Checklist

Evaluate the tradeoffs in how data elements are organized and where data is stored.	I		
Create interactive data visualizations using software tools to help others better understand real-world phenomena.	I		
Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.	I		
Algorithms and Programming			
Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	I		
Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	I		
Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.	I		
Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.	I		
Decompose problems into smaller components through systemic analysis, using constructs such as procedures, modules, and/or objects.	I		
Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	I		
Systematically design and develop programs for broad audiences by incorporating feedback from users.	I		
Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.	I		
Evaluate and refine computational artifacts to make them more usable and accessible.	I		
Design and develop computational artifacts working in team roles using collaborative tools.	I		
Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	I		
Impacts of Computing			
Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	I		
Test and refine computational artifacts to reduce bias and equity deficits.	I		
Demonstrate ways a given algorithm applies to problems across disciplines.	I		
Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	I		
Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	I	✓	
Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.	I		
Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.	I		