

Concept	Subconcept	PK		Kindergarten		1st Grade		2nd Grade	
		Standard	Description	Standard	Description	Standard	Description	Standard	Description
Computing Systems	Devices	PK.CS.D.01 With guidance, demonstrate how to operate a computing device.	People use computing devices to perform a variety of tasks accurately and quickly. With guidance, students should be able to select the appropriate app/program to use for tasks they are required to complete. For example, if students are asked to draw a picture, they should be able to open and use a drawing app/program to complete this task.	K.CS.D.01 Demonstrate how to operate a variety of computing devices.	People use computing devices to perform a variety of tasks accurately and quickly. After instruction, students should be able to select the appropriate app/program to use for tasks they are required to complete, then power down or log off. For example, if students are asked to draw a picture, they should be able to open and use a drawing app/program to complete this task.	1.CS.D.01 With guidance, select and use a computing device to perform a variety of tasks for an intended outcome.	People use computing devices to perform a variety of tasks accurately and quickly. Students should be able to select the appropriate app/program to use for tasks they are required to complete, then log off or power down. For example, if students are asked to draw a picture, they should be able to open and use a drawing app/program to complete this task, or if they are asked to create a presentation, they should be able to open and use presentation software. In addition, with teacher guidance, students should be aware that different software has the same primary functionality. (e.g. Keynote, PowerPoint, Google Slides)	2.CS.D.01 Select and use a computing device to perform a variety of tasks for an intended outcome.	People use computing devices to perform a variety of tasks accurately and quickly. Students should be able to select the appropriate app/program to use for tasks they are required to complete, then log off or power down. For example, if students are asked to draw a picture, they should be able to open and use a drawing app/program to complete this task, or if they are asked to create a presentation, they should be able to open and use presentation software. In addition, with teacher guidance, students should compare and discuss preferences for software with the same primary functionality. Students could compare different web browsers or word processing, presentation, or drawing programs.
	Hardware and Software	PK.CS.HS.01 With guidance, use appropriate terminology to locate and identify common computing devices and components in a variety of environments (e.g. turn on, navigate, open/close programs/apps).	A computing system is composed of hardware and software. Hardware consists of physical components. With guidance, students should be able to identify and describe the function of external hardware, such as desktop computers, laptop computers, tablet devices, monitors, keyboards, mice, and printers.	K.CS.HS.01 Use appropriate terminology to locate and identify common computing devices and components in a variety of environments (e.g. turn on, navigate, open/close programs/apps).	A computing system is composed of hardware and software. Hardware consists of physical components. After instruction, students should be able to identify and describe the function of external hardware, such as desktop computers, laptop computers, tablet devices, monitors, keyboards, mice, and printers.	1.CS.HS.01 Use appropriate terminology in identifying and describing the function of common computing devices and components. (e.g. use an app to draw on the screen, use software to write a story or control robots).	A computing system is composed of hardware and software. Hardware consists of physical components. Software provides a computer a set of instructions to follow. Students should be able to identify and describe the function of software and hardware such as interactive boards, touch screen devices, and robotics.	2.CS.HS.01 Model the use of components of a computing system, its basic functions, peripherals, and storage features. (e.g. using the hard drive, memory/storage, printers, scanners, wireless and cabled connections, and cloud storage).	A computing system is composed of hardware and software. Hardware consists of physical components. Software provides a computer a set of instructions to follow. Students should be able to identify and use the function of software and hardware such as memory/storage, printers, flash drive, cloud storage, etc.
	Hardware and Software	PK.CS.HS.02 With guidance, correctly use software that controls computing devices (e.g. programs, browsers, websites, and applications).	Computer software and apps are programmed and installed on hard drives on various devices utilized by every end user. Software provides code for the programs to compute properly for the created operation. Software apps and programs interact with one another to provide an intended outcome or output. With guidance, students should be able to open, use, and close varying programs, apps, or software.	K.CS.HS.02 Identify and use software that controls computing devices (e.g. programs, browsers, websites, and applications).	Computer software and apps are programmed and installed on hard drives on various devices utilized by every end user. Software provides code for the programs to compute properly for the created operation. Software apps and programs interact with one another to provide an intended outcome or output. This could include, but not limited to, district purchased client-based reading or math program software, apps for a specific learning method, or accessing a browser to navigate web based programs.	1.CS.HS.02 With guidance select and use appropriate software/apps for an intended outcome. (e.g. programs, browsers, websites, and applications)	Computer software and apps are programmed and installed on hard drives on various devices utilized by every end user. Software provides code for the programs to compute properly for the created operation. Software apps and programs interact with one another to provide an intended outcome or output. Students should be able to identify the application or program required for a desired activity. This could include, but not limited to, district purchased client-based reading or math program software, apps for a specific learning methods Reading Eggs, iMovie, Google Apps, Seesaw, or accessing a browser to navigate web based programs.	2.CS.HS.02 Self select and use appropriate software/apps for an intended outcome. (e.g. programs, browsers, websites, and applications).	Computer software and apps are programmed and installed on hard drives on various devices utilized by every end user. Software provides code for the programs to compute properly for the created operation. Software apps and programs interact with one another to provide an intended outcome or output. Students should be able to select an application or program required for a desired activity. This could include, but not limited to, district purchased client-based reading or math program software, apps for a specific learning methods Reading Eggs, iMovie, Google Apps, Seesaw, or accessing a browser to navigate web based programs.
	Input and Output	PK.CS.IO.01 With guidance, identify and apply basic input/output skills. Input (keyboarding, mouse, touchscreen, voice, camera, interactive board) Output (monitor, screen, printer, audio)	Input devices are used to input data for the creation of various digital products. Some input devices a person could use include voice input, touchpad, touchscreen, mouse, keyboarding (Keyboarding - practice locating space bar, enter key, and developmentally appropriate letters.) Output devices are how a computer displays information, which includes the screen, monitor, speaker, or printer.	K.CS.IO.01 K Identify and apply basic input/output skills. Input (keyboarding, mouse, touchscreen, voice, camera, robotics, interactive board) Output (monitor, screen, printer, robotics, audio)	Input devices are used to input data for the creation of various digital products. Some input devices a person could use include voice input, touchpad, touchscreen, mouse, keyboarding (Keyboarding - practice locating space bar, enter key, and developmentally appropriate letters. Students should understand the left hand is used for the left side of the keyboard, and the right hand is used on the right side. This includes the understanding the general layout of the keys including developmentally appropriate number recognition.) Output devices are how a computer displays information, which includes the screen, monitor, speaker, or printer.	1.CS.IO.01 Understand and apply basic input/output skills. Input (keyboarding, mouse, touchscreen, voice, camera, robotics, interactive board) Output (monitor, screen, printer, 3D printer, robotics, audio)	Input devices are used to input data for the creation of various digital products. Some input devices a person could use include voice input, touchpad, touchscreen, mouse, keyboarding (Keyboarding - practice locating space bar, enter key, and developmentally appropriate letters. Students should understand the left hand is used for the left side of the keyboard, and the right hand is used on the right side. This includes the understanding that the keyboard is not in alphabetical order and the general layout of the keys including the location of numbers and basic punctuation.) Output devices are how a computer displays information. Student should understand the use of output devices such as audio, video, screen display, robotics, and printers.	2.CS.IO.01 Understand and use varying input/output skills. Input (keyboarding, mouse, touchscreen, voice, voice typing, camera, robotics, interactive board) Output (monitor, screen, printer, 3D printer, robotics, audio)	Input devices are used to input data for the creation of various digital products. Some input devices a person could use include voice typing, touchpad, touchscreen, mouse, and keyboarding. (Keyboarding- use fingers on home row and the spacebar with the thumb, shift key for capital letters, understand that clicking the mouse or tapping the location on the screen makes an insertion point in a document and how to use the mouse to highlight (double-click) a word.
	Troubleshooting	PK.CS.T.01 Recognize that computing systems might not work as expected and with guidance can identify simple hardware or software problems (e.g. volume turned down on headphones, monitor turned off).	Problems with computing systems have different causes. Students at this level do not need to understand those causes, but they should be able to communicate a problem (e.g., when an app or program is not working as expected, a device will not turn on, the sound does not work, etc.). Ideally, students would be able to use simple troubleshooting strategies, including turning on and off the device, turning on speakers, adjusting volume, or plugging in headphones. These are, however, not specified in the standard, because these problems may not occur.	K.CS.T.01 Recognize that computing systems might not work as expected and use accurate terminology to identify simple hardware or software problems (e.g. volume turned down on headphones, monitor turned off).	Problems with computing systems have different causes. Students at this level do not need to understand those causes, but they should be able to communicate a problem with accurate terminology (e.g., when an app or program is not working as expected, a device will not turn on, the sound does not work, etc.). Ideally, students would be able to use simple troubleshooting strategies, including turning a device off and on to reboot it, closing and reopening an app, turning on speakers, or plugging in headphones. These are, however, not specified in the standard, because these problems may not occur.	1.CS.T.01 Identify and describe basic hardware and software problems using accurate terminology (app or program is not working as expected, no sound is coming from the device, caps lock turned on, WiFi not working).	Problems with computing systems have different causes. Students at this level will start to understand those causes, communicate the problem with accurate terminology, and seek solutions to that problem (e.g., when an app or program is not working as expected, a device will not turn on, the sound does not work, etc.). Ideally, students would be able to use simple troubleshooting strategies, including turning a device off and on to reboot it, closing and reopening an app, checking wi-fi, turning on speakers, or plugging in headphones. These are, however, not specified in the standard, because these problems may not occur.	2.CS.T.01 Using accurate terminology, identify and resolve simple hardware and software problems and strategies for solving these problems.	Problems with computing systems have different causes. Students at this level will start to understand those causes, and should be able to communicate a problem with accurate terminology, and be able to find solutions to that problem (e.g., when an app or program is not working as expected, a device will not turn on, the sound does not work, etc.). Ideally, students would be able to use simple troubleshooting strategies, including turning a device off and on to reboot it, closing and reopening an app, turning on speakers, or plugging in headphones. These are, however, not specified in the standard, because these problems may not occur.

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Networks & the Internet	Network Communication & Organization	PK.NI.NCO.01 Recognize that computing devices are connected via wired or wireless networks so that they can communicate with each other.	Networking and interconnectivity of computing devices are essential in today's society. Through Wi-fi, bluetooth, or hard line ethernet connections, the ability of information to be shared with an organized, secure and reliable system, is an integrated range of platforms which uses various software and hardware. Students should have an awareness the device is connected to another device.	K.NI.NCO.01 Recognize and use computing devices to connect with people or other devices using a network to communicate, access, and share information as a class (e.g. the internet, video conferencing, email, file transfer).	Networking and interconnectivity of computing devices are essential in today's society. Through Wi-fi, bluetooth, or hard line ethernet connections, the ability of information to be shared with an organized, secure and reliable system, is an integrated range of platforms which uses various software and hardware. Students should understand whether information is being sent to the program or device. (e.g., the teacher laptop is being connected to the LCD projector, or if the wifi or internet connection is active.	1.NI.NCO.01 Recognize that by connecting computing devices together they can share information using a network (e.g. wired or wireless network).	Networking and interconnectivity of computing devices are essential in today's society. Through Wi-fi, bluetooth, or hard line ethernet connections, the ability of information to be shared with an organized, secure and reliable system, is an integrated range of platforms which uses various software and hardware. Students should be able to identify whether information is being sent to the program or device. (e.g., the teacher laptop is being connected to the LCD projector, or if how a bluetooth speaker connection is active.)	2.NI.NCO.01 Use computing devices to share information and communicate with others using a network.	Networking and interconnectivity of computing devices are essential in today's society. Through Wi-fi, bluetooth, or hard line ethernet connections, the ability of information to be shared with an organized, secure and reliable system, is an integrated range of platforms which uses various software and hardware. Students should be able to understand and apply the process of sending information to the program or device. (e.g., the teacher laptop is being connected to the LCD projector, or if the wifi or connection is active via Airplay, screenshare, airdrop, bluetooth speaker or headphones, Google Classroom uploads)
	Cybersecurity	PK.NI.C.01 Recognize that passwords are private and should be kept secret.	Learning to protect one's device or information from unwanted use by others is an essential first step in learning about cybersecurity.	K.NI.C.01 Use a form of secure access to protect private information and discuss the effects of password misuse (e.g. logging into a device, educational websites, authentication, thumbprint recognition).	Learning to protect one's device or information from unwanted use by others is an essential first step in learning about cybersecurity. Students should appropriately use and protect the passwords they are required to use.	1.NI.C.01 Identify what authentication methods (passwords) are; explain why they are not shared, and discuss what makes a password strong. Independently, use passwords to access technological devices, apps, etc.	Learning to protect one's device or information from unwanted use by others is an essential first step in learning about cybersecurity. Students are not required to use multiple strong passwords. They should appropriately use and protect the passwords they are required to use.	2.NI.C.01 Demonstrate use of strong authentication methods to access and protect devices and data. Understand the effects of retaining password privacy.	Learning to protect one's device or information from unwanted use by others is an essential first step in learning about cybersecurity. Students are required to use strong passwords. They should appropriately use and protect the passwords they are required to use.
Data Analysis	Storage	PK.DA.S.01 Know that the computing device can save information as data that can be searched, modified, and saved or deleted (e.g. save photos, files, or videos).	All information stored and processed by a computing device is referred to as data. Data can be images, text documents, audio files, software programs or apps, video files, etc. As students use software to complete tasks on a computing device, they will be manipulating data. Students should be aware that information can be found or searched on a device.	K.DA.S.01 With guidance, demonstrate that computing devices can save information as data that can be searched, modified, and saved or deleted (e.g. save photos, files, or videos).	All information stored and processed by a computing device is referred to as data. Data can be images, text documents, audio files, software programs or apps, video files, etc. As students use software to complete tasks on a computing device, they will be manipulating data. With guidance, students will search, save, or delete data. This can be a web search, save and retrieve a photo, take a screenshot, or saving or printing their creations.	1.DA.S.01 With guidance locate, open, modify, delete and save an existing file, use appropriate file-naming conventions, and recognize that the file exists within an organizational structure (drive, folder, file).	All information stored and processed by a computing device is referred to as data. Data can be images, text documents, audio files, software programs or apps, video files, etc. As students use software to complete tasks on a computing device, they will be manipulating data. With guidance, students will search for or retrieve files by name, or organize files. This could include taking photos, opening, and deleting them, organizing files or photos into folders on a desktop or on an operating system, and learning to name and save a file before exiting.	2.DA.S.01 Manipulate existing files while use appropriate file-naming conventions. With guidance, develop and modify an organizational structure by creating, copying, moving, and deleting files and folders.	All information stored and processed by a computing device is referred to as data. Data can be images, text documents, audio files, software programs or apps, video files, etc. As students use software to complete tasks on a computing device, they will be manipulating data. Students will organize files or folders and use naming techniques. e.g. sorting content area activities, grouping photos by project, moving files or photos to the trash.
	Collection	PK.DA.C.01 Students understand that data about themselves and the world around them is collected, used, and organized in a meaningful way.	The collection and use of data about the world around them is a routine part of life and influences how people live.	K.DA.C.01 Students will learn how data about themselves and the world around them is collected, used, and organized in a meaningful way.	The collection and use of data about the world around them is a routine part of life and influences how people live. Students could collect data on the weather, such as sunny days versus rainy days, the temperature at the beginning of the school day and end of the school day, or the inches of rain over the course of a storm.	1.DA.C.01 With guidance, collect data and present it two different ways (chart or graph).	The collection and use of data about the world around them is a routine part of life and influences how people live. Students could collect data on the weather, such as sunny days versus rainy days, the temperature at the beginning of the school day and end of the school day, or the inches of rain over the course of a storm. Students could count the number of pieces of each color of candy in a bag of candy, such as Skittles or M&Ms. Students could create surveys of things that interest them, such as favorite foods, pets, or TV shows, and collect answers to their surveys from their peers and others. The data collected could then be organized into two or more visualizations, such as a bar graph or pie chart.	2.DA.C.01 With guidance, collect and present the same data in various visual formats.	The collection and use of data about the world around them is a routine part of life and influences how people live. Students could collect data on the weather, such as sunny days versus rainy days, the temperature at the beginning of the school day and end of the school day, or the inches of rain over the course of a storm. Students could count the number of pieces of each color of candy in a bag of candy, such as Skittles or M&Ms. Students could create surveys of things that interest them, such as favorite foods, pets, or TV shows, and collect answers to their surveys from their peers and others. The data collected could then be organized into two or more visualizations, such as a bar graph, pie chart, or pictograph.
	Visualization & Transformation	PK.DA.CVT.01 Students represent collected data in a visual way. (e.g. charts, graphs, tables).	Data can be used to make inferences or predictions about the world. Students could analyze a graph or pie chart of the colors in a bag of candy or identify the patterns for which colors are most and least represented, and then make a prediction as to which colors will have most and least in a new bag of candy. Students can explore bar graphs or line graphs to analyze what has more or less. This can be done without a computing device - paper, interactive board, chart paper, class graph, etc.	K.DA.CVT.01 Students represent collected data in a visual way through a computing device (e.g. charts, graphs, tables).	Data can be used to make inferences or predictions about the world. Students could analyze a graph or pie chart of the colors in a bag of candy or the averages for colors in multiple bags of candy. Identify the patterns for which colors are most and least represented, and then make a prediction as to which colors will have most and least in a new bag of candy. With guidance, students could create charts or graphs in spreadsheet applications, web based programs, or visually in digital drawings to portray data collected. This data could include types of pets, number of siblings, shoe size, etc. This could be done with an interactive board, tablets, or computer.	Data can be used to make inferences or predictions about the world. Students could analyze a graph or pie chart of the colors in a bag of candy or the averages for colors in multiple bags of candy. Identify the patterns for which colors are most and least represented, and then make a prediction as to which colors will have most and least in a new bag of candy. Students could create and analyze charts or graphs in spreadsheet applications, web based programs, or visually in digital drawings to portray data collected. They could create and analyze graphs of temperatures taken at the beginning of the school day and end of the school day, identify the patterns of when temperatures rise and fall, and predict if they think the temperature will rise or fall at a particular time of the day, based on the pattern observed. The focus is making predictions based on data.	1.DA.CVT.01 With guidance, identify and interpret data from a chart or graph (visualization) in order to make a prediction, with or without a computing device.	Data can be used to make inferences or predictions about the world. Students could analyze a graph or pie chart of the colors in a bag of candy or the averages for colors in multiple bags of candy. Identify the patterns for which colors are most and least represented, and then make a prediction as to which colors will have most and least in a new bag of candy. Students could create and analyze charts or graphs in spreadsheet applications, web based programs, or visually in digital drawings to portray data collected. They could create and analyze graphs of temperatures taken at the beginning of the school day and end of the school day, identify the patterns of when temperatures rise and fall, and predict if they think the temperature will rise or fall at a particular time of the day, based on the pattern observed. The focus is making predictions based on data.	2.DA.CVT.01 Collect data over time and organize it on a chart or graph in order to make a prediction.

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	Inference and Models	PK.DA.IM.01 Students look for patterns in data, make predictions, and make a model (e.g. make predictions on weather data, butterfly life cycle, etc.) and present in a picture graph or pattern.	Data can be represented in models to portray results and to assist in identifying patterns in the world around us. This type of data is represented in a more visual way outside of lines, bars, and charts. This would include life cycles, weather maps, and processes. Students will show data in a pattern. With guidance, students will show what would be next in a basic pattern, or what might be missing from a pattern. This could be a color pattern, number pattern, animal pattern, etc. It can be as basic as ABAB, or ABBABB.	K.DA.IM.01 Students look for patterns in data, make predictions, make a model, and draw conclusions (e.g. make predictions on weather data, butterfly life cycle, etc.) and present in a picture graph or pattern.	Data can be represented in models to portray results and to assist in identifying patterns in the world around us. This type of data is represented in a more visual way outside of lines, bars, and charts. This would include life cycles, weather maps, and processes. Students will show data in a pattern. Students will create models to show data which could include pictographs of favorite cookie, fruit, sport, or models also include Students will show what would be next in a pattern, or what might be missing from a pattern. This could be a color pattern, number pattern, animal pattern, etc. It can be as basic as ABAB, or ABBABB.	1.DA.IM.01 Create a model of an object or process in order to identify patterns and essential elements. (e.g. water table, butterfly life cycle, seasonal weather patterns).	Data can be represented in models to portray results and to assist in identifying patterns in the world around us. This type of data is represented in a more visual way outside of lines, bars, and charts. This would include life cycles, weather maps, processes, such as the engineering design process. Students will create models either physically (paper, clay, etc) or digitally using photos, text and shapes with the intent of understanding patterns and essential steps and information.	2.DA.IM.01 Use patterns in data to make inferences or predictions based on data collected from users or simulations.	Data can be represented in models to portray results and to assist in identifying patterns in the world around us. This includes students collecting their own data or experiencing digital simulations. The intent is to make predictions based on the data collected from participants or from simulations.
Algorithms and Programming	Algorithms	PK.AP.A.01 With guidance, construct and execute algorithms (set of step-by-step instructions) that includes sequencing and simple loops to accomplish a task with or without a computing device (e.g. verbally, kinesthetically, with robot devices or a programming language, block coding).	Algorithmic thinking is the ability to define clear steps to solve a problem. A process to complete a task (such as the steps to tie your shoes), and recipes are examples of algorithms. Expose students to the term algorithm as they are sequencing events or processes like getting ready for school in the morning.	K.AP.A.01 Construct and execute algorithms (set of step-by-step instructions) that includes sequencing and simple loops to accomplish a task, both independently, collaboratively, with or without a computing device (e.g. verbally, kinesthetically, with robot devices or a programming language, block coding).	Algorithmic thinking is the ability to define clear steps to solve a problem. A process to complete a task (such as the steps to tie your shoes), and recipes are examples of algorithms. Expose students to the term algorithm as they are sequencing events or processes like getting ready for school in the morning. Students should create algorithms (specific steps) to accomplish a task.	1.AP.A.01 With guidance, model daily processes and follow algorithms (sets of step-by-step instructions) for complete tasks verbally, kinesthetically, with robot devices, or a programming language.	Algorithmic thinking is the ability to define clear steps to solve a problem. Composition is the combination of smaller tasks into more complex tasks. With guidance, students should be able to create and follow algorithms for making simple foods, brushing their teeth, getting ready for school, participating in clean-up time or programming a robotic device to follow a preset path.	2.AP.A.01 Both independently and collaboratively construct and follow algorithms that include sequencing and simple loops to accomplish a task verbally, kinesthetically, with robot devices, or a programming language.	Algorithmic thinking is the ability to define clear steps to solve a problem. Composition is the combination of smaller tasks into more complex tasks. With guidance, students should be able to create and follow algorithms for making simple foods, brushing their teeth, getting ready for school, participating in clean-up time or programming a robotic device to follow a preset path. Students should understand that loops repeat the steps of a process.
	Variables	PK.AP.V.01 With guidance, understand that numbers represent different types of data using numbers or other symbols (e.g. thumbs up/thumbs down for yes/no color by number, arrows for direction, encoding/decoding a word using numbers or pictographs).	Information in the real world can be represented in computer programs. Students could use thumbs up/down as representations of yes/no, use arrows when writing algorithms to represent direction, or encode and decode words using numbers, pictographs, or other symbols to represent letters or words.	K.AP.V.01 With guidance, recognize that numbers represent different types of data using numbers or other symbols (e.g. thumbs up/thumbs down for yes/no color by number, arrows for direction, encoding/decoding a word using numbers or pictographs).	can be represented in computer programs. Students could use thumbs up/down as representations of yes/no, use arrows when writing algorithms to represent direction, use emojis that represent emotion, or encode and decode words using numbers, pictographs, or other symbols to represent letters or words.	1.AP.V.01 With guidance, model the way that programs store and manipulate data by using numbers or other symbols to represent information (e.g. thumbs up/thumbs down for yes/no, use arrows when writing algorithms to represent direction, or encode and decode words using numbers, pictographs, or other symbols to represent letters or words).	can be represented in computer programs. Students could use thumbs up/down as representations of yes/no, use arrows when writing algorithms to represent direction, use emojis that represent emotion, or use common icons and symbols to perform an action (play is a triangle, save button, share button, etc.)	2.AP.V.01 Use and model the way a computer program stores, accesses, and manipulates data that is represented as a variable.	can be represented in computer programs. Students could use thumbs up/down as representations of yes/no, use arrows when writing algorithms to represent direction, use emojis that represent emotion, or use common icons and symbols to perform an action (play is a triangle, save button, share button, etc.)
	Control	PK.AP.C.01 With guidance, create programs to accomplish tasks using a programming language, robot device, or unplugged activity that includes sequencing events and simple loops (e.g. emphasizing beginning, middle, and end; collaborative programming).	Programming is used as a tool to create products that reflect a wide range of interests. Control structures specify the order in which instructions are executed within a program. Emphasize the sequence of events, such as left, right, up, down. Get from one point to another on a map. Explore basic robots that use arrows for direction, or search for lessons on CS unplugged fundamentals.	K.AP.C.01 With guidance, independently or collaboratively create programs to accomplish tasks using a programming language, robot device, or unplugged activity that includes sequencing events and simple loops (e.g. emphasizing beginning, middle, and end; collaborative programming).	Programming is used as a tool to create products that reflect a wide range of interests. Control structures specify the order in which instructions are executed within a program. Emphasize the sequence of events, such as left, right, up, down. Get from one point to another on a map. Explore basic robots that use arrows for direction, or search for lessons on CS unplugged fundamentals.	1.AP.C.01 With guidance, independently, or collaboratively construct algorithms (sets of step-by-step instructions) to accomplish tasks using a programming language, robot device, or unplugged activity that includes sequencing and repetition, to express ideas or address a problem.	Programming is used as a tool to create products that reflect a wide range of interests. Control structures specify the order in which instructions are executed within a program. Emphasize the sequence of events, such as left, right, up, down. Get from one point to another on a map. Have students develop the steps and have others follow those steps. Search lessons for CS Unplugged, or CS fundamentals.	2.AP.C.01 Independently and collaboratively create programs to accomplish tasks using a programming language such as block based programming using a robot device, or unplugged activity that includes simple loops, sequencing, and repetition.	Programming is used as a tool to create products that reflect a wide range of interests. Control structures specify the order in which instructions are executed within a program. Use block based programming, which is found in most robots used in elementary schools, or online resources to learn coding skills.
	Modularity	PK.AP.M.01 With guidance, decompose (break down) a larger problem into smaller subproblems.	Decomposition is the act of breaking down tasks into simpler tasks. Students could break down the steps needed to make breakfast, get ready for school, to move a character across the screen. This can be done with or without a computing device.	K.AP.M.01 With guidance, decompose (break down) a larger problem into smaller subproblems or combine simple tasks to make something more complex.	Decomposition is the act of breaking down tasks into simpler tasks. Students could break down the steps needed to make breakfast, get ready for school, to move a character across the screen. Combining tasks could include being given objects to construct sub parts that go together to make a more complex creation (building structures out of legos, then combining them into a town or community). This can be done with or without a computing device.	1.AP.M.01 With guidance, decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.	Decomposition is the act of breaking down tasks into simpler tasks. Students could break down the steps needed to make a peanut butter and jelly sandwich, to brush their teeth, to draw a shape, to move a character across the screen, or to solve a level of a coding app.	2.AP.M.01. Independently decompose (break down) a larger problem into smaller subproblems and steps needed to solve those problems.	Decomposition is the act of breaking down tasks into simpler tasks. Students could break down the steps needed to make a peanut butter and jelly sandwich, to brush their teeth, to draw a shape, to move a character across the screen, or to solve a level of a coding app. When coding, including the setting, designing a character, and choosing the actions.

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	Program Development	PK.AP.PD.01 Create a design document to illustrate thoughts, ideas, and stories in a sequential manner.	Creating a design document for what a program will do clarifies the steps that will be needed to create a program and can be used to check if a program is correct. Students could create a planning document such as a story map to illustrate what their program will do.	K.AP.PD.01 Create a design document to illustrate thoughts, ideas and stories in a sequential manner (e.g. storyboard, mindmap, sequential graphic organizer).	Creating a design document for what a program will do clarifies the steps that will be needed to create a program and can be used to check if a program is correct. Students could create a planning document, such as a story map, a storyboard, or a sequential graphic organizer, to illustrate what their program will do. Students at this stage may complete the planning process with help from their teachers.	1.AP.PD.01 Independently or with guidance, create a grade-level appropriate artifact to illustrate thoughts, ideas, or stories in a sequential (step-by-step) manner (e.g. story map, storyboard, and sequential graphic organizer).	Creating a plan for what a program will do clarifies the steps that will be needed to create a program and can be used to check if a program is correct. Students could create a planning document, such as a story map, a storyboard, or a sequential graphic organizer, to illustrate what their program will do. Students at this stage may complete the planning process by themselves, or with help from their teachers.	2.AP.PD.01 Independently create a grade-level appropriate artifact to illustrate thoughts, ideas, or stories in a sequential (step-by-step) manner (e.g., story map, storyboard, and sequential graphic organizer).	Creating a plan for what a program will do clarifies the steps that will be needed to create a program and can be used to check if a program is correct. Students could create a planning document, such as a story map, a storyboard, or a sequential graphic organizer, to illustrate what their program will do. Students at this stage should be able to complete the planning process by themselves.
	Program Development	PK.AP.PD.02 Recognize that digital items can be owned and that proper credit needs to be given (e.g. using code, music, pictures).	Using computers comes with a level of responsibility. Students should recognize that artifacts were created by others, such as pictures, music, and code.	K.AP.PD.02 With guidance, give credit to ideas, creations, and solutions of others while developing algorithms (e.g. using code, music, pictures).	Using computers comes with a level of responsibility. With guidance, students should credit artifacts that were created by others, such as pictures, music, and code. Credit could be given orally, if presenting their work to the class, or in writing or orally, if sharing work on a class blog or website. Proper attribution at this stage does not require a formal citation, such as in a bibliography or works cited document.	1.AP.PD.02 Independently or with guidance give credit to ideas, creations and solutions of others while writing and/or developing programs.	Using computers comes with a level of responsibility. Students should credit artifacts that were created by others, such as pictures, music, and code. Credit could be given orally, if presenting their work to the class, or in writing or orally, if sharing work on a class blog or website. Proper attribution at this stage does not require a formal citation, such as in a bibliography or works cited document.	2.AP.PD.02 Give credit to ideas, creation (such as code, music, or pictures) and solutions of others while writing and developing programs.	Using computers comes with a level of responsibility. Students should credit artifacts that were created by others, such as pictures, music, and code. Credit could be given orally, if presenting their work to the class, or in writing or orally, if sharing work on a class blog or website. Proper attribution at this stage does not require a formal citation, such as in a bibliography or works cited document.
	Program Development	PK.AP.PD.03 With guidance, construct, execute, and debug (identify and fix) algorithms using programming language and or an unplugged activity that includes sequencing (e.g. use block based programming).	Algorithms or programs may not always work correctly. With guidance, students should be able to use various strategies, such as changing the sequence of the steps, following the algorithm in a step-by-step manner, or trial and error to fix problems in algorithms and programs.	K.AP.PD.03 With guidance, independently or collaboratively construct, execute, and debug (identify and fix) algorithms using a programming language and or an unplugged activity that includes sequencing (e.g. use block based programming).	Algorithms or programs may not always work correctly. With guidance, students should be able to use various strategies, such as changing the sequence of the steps, following the algorithm in a step-by-step manner, or trial and error to fix problems in algorithms and programs independently or collaboratively.	1.AP.PD.03 With guidance, independently, or collaboratively construct, execute, and debug (identify and fix) programs using a programming language and/or unplugged activity that includes sequencing and repetition.	Algorithms or programs may not always work correctly. Students should be able to use various strategies, such as changing the sequence of the steps, following the algorithm in a step-by-step manner, or trial and error to fix problems in algorithms and programs.	2.AP.PD.03. Independently and collaboratively construct, execute, analyze and debug (fix) an algorithm using a programming language and/or unplugged activity that includes sequencing and simple loops.	Algorithms or programs may not always work correctly. Students should be able to independently use various strategies, such as changing the sequence of the steps, following the algorithm in a step-by-step manner, or trial and error to fix problems in algorithms and programs.
	Program Development	PK.AP.PD.04 With guidance, use correct terminology in the development of an algorithm to solve a simple problem (e.g. beginning, middle, end).	With guidance, students should be able to talk or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs. This could be done through discussions with the teacher or class.	K.AP.PD.04 Use correct terminology in the development of an algorithm to solve a simple problem (e.g. beginning, middle, end).	At this stage, students should be able to talk or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs. This could be done using coding journals, discussions with a teacher, or class presentations.	1.AP.PD.04 Use correct terminology (first, second, third) and explain the choices made in the development of an algorithm to solve a simple problem.	At this stage, students should be able to talk or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs. This could be done using coding journals, discussions with a teacher, class presentations, or blogs.	2.AP.PD.04. Use correct terminology (debug, program input/output, code) to explain the development of an algorithm to solve a problem in an unplugged activity, hands on manipulatives, or a programming language.	At this stage, students should be able to use correct terminology to discuss or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs. This could be done using coding journals, discussions with a teacher, class presentations, or blogs.
	Culture	PK.IC.C.01 Understand different ways in which types of technologies are used in your daily life.	In the past, if students wanted to read about a topic, they needed access to a library to find a book about it. Today, young students can view and read information on the Internet about a topic or they can download e-books about it directly to a device. Such information may be available in more than one language and could be read to a student, allowing for great accessibility. Students should develop an awareness in describing various ways technology can impact their world. (e.g. checking out at a store, buying lunch, using an iPhone or Android device to call in an emergency, or learning through video sharing.)	K.IC.C.01 Understand different ways in which types of technologies are used in your daily life.	In the past, if students wanted to read about a topic, they needed access to a library to find a book about it. Today, young students can view and read information on the Internet about a topic or they can download e-books about it directly to a device. Such information may be available in more than one language and could be read to a student, allowing for great accessibility. Students should be able to analyze where and when various ways technology can be used. (e.g. checking out at a store, buying lunch, using an iPhone or Android device to call in an emergency, or learning through video sharing.)	1.IC.C.01 Identify how people use different types of technologies in their daily work and personal lives.	Computing technology has changed the way people live and work. In the past, if students wanted to read about a topic, they needed access to a library to find a book about it. Today, students will be able to view and read information on the Internet about a topic or they can download e-books about it directly to a device. Such information may be available in more than one language and could be read to a student, allowing for great accessibility. In personal lives, they are encouraged to engage in computing in a positive learning and encouraging manner.	2.IC.C.01 Recognize and describe how different technologies used daily in work and at home are used to solve problems or make work and life easier.	Computing technology has changed the way people live and work. In the past, if students wanted to read about a topic, they needed access to a library to find a book about it. Today, students will be able to view and read information on the Internet about a topic or they can download e-books about it directly to a device. Such information may be available in more than one language and could be read to a student, allowing for great accessibility. In their personal lives, they should be able to utilize those same technologies to complete life tasks (e.g. ordering food, video-editing, game play, drones, sending emails to family and friends for social interactions, and possibly checking the weather for the next day.)

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		Standard	Description	Standard	Description	Standard	Description	Standard	Description
Impacts of Computing	Social Interactions	PK.IC.SI.01 With guidance understand what would be appropriate while participating in an online environment. (Digital Citizenship - focus on Digital Literacy.)	The practice of appropriate online behavior derives from the identification of inappropriate behavior and the identification of what makes someone a poor digital citizen or know what not to do in order to be ethical online. Communicate to students the importance of being safe online by only using sites approved by an adult. Encourage students to tell an adult if they feel uncomfortable or see something they feel is not appropriate. The practice of appropriate online behavior derives from the identification of inappropriate behavior and the identification of what makes someone a poor digital citizen or know what not to do in order to be ethical online. Digital citizenship is described with nine categories, however PreK-2 will focus on 4 of these: Digital Literacy (the ability to use new technology quickly and appropriately), Digital Etiquette (appropriate conduct), Digital Rights and Responsibilities (knowing your rights to free speech and privacy, but handling it responsibly online), and Digital Health and Wellness (caring for your physical and psychological well being online).	K.IC.SI.01 With guidance identify appropriate manners while participating in an online environment. (Digital Citizenship - focus on Digital Literacy and Digital Etiquette.)	The practice of appropriate online behavior derives from the identification of inappropriate behavior and the identification of what makes someone a poor digital citizen or know what not to do in order to be ethical online. Students practice online safety by only using sites approved by an adult. Encourage students to tell an adult if they feel uncomfortable or see something they feel is not appropriate. Make students aware of the privacy of the digital resources being used in the classroom and who sees what is being posted (social media - the teacher posting class photos, students posting to online platforms such as SeeSaw, data from testing sites such as iStation and Lexia). Digital citizenship is described with nine categories, however PreK-2 will focus on 4 of these: Digital Literacy (the ability to use new technology quickly and appropriately), Digital Etiquette (appropriate conduct), Digital Rights and Responsibilities (knowing your rights to free speech and privacy, but handling it responsibly online), and Digital Health and Wellness (caring for your physical and psychological well being online).	1.IC.SI.01 With guidance, identify appropriate and inappropriate behavior. Act responsibly while participating in an online community and know how to report concerns. (Digital Citizenship - review Digital Literacy, but focus on Digital Etiquette and Rights and Responsibilities.)	The practice of appropriate online behavior derives from the identification of inappropriate behavior and the identification of what makes someone a poor digital citizen or know what not to do in order to be ethical online. Students practice online safety by only using sites approved by an adult. Encourage students to tell an adult if they feel uncomfortable or see something they feel is not appropriate. Make students aware of the privacy of the digital resources being used in the classroom and who sees what is being posted (social media - the teacher posting class photos, students posting to online platforms such as SeeSaw, data from testing sites such as iStation and Lexia). This includes knowing not to disclose personal information such as last name, location, and passwords. Students practice giving positive feedback on other student posts. Digital citizenship is described with nine categories, however PreK-2 will focus on 4 of these: Digital Literacy (the ability to use new technology quickly and appropriately), Digital Etiquette (appropriate conduct), Digital Rights and Responsibilities (knowing your rights to free speech and privacy, but handling it responsibly online), and Digital Health and Wellness (caring for your physical and psychological well being online).	2.IC.SI.01 Aid in developing an appropriate code of conduct, explain and practice grade-level appropriate behavior and responsibilities while participating in an online community. Identify and report inappropriate behavior. (Digital Citizenship - review Digital Literacy and Digital Etiquette, but focus on Rights and Responsibilities and Digital Health and Wellness.)	The practice of appropriate online behavior derives from the identification of inappropriate behavior and the identification of what makes someone a poor digital citizen or know what not to do in order to be ethical online. Students could share their work on blogs or in other collaborative spaces online, taking care to avoid sharing information that is inappropriate or that could personally identify them to others. Students could provide feedback to others on their work in a kind and respectful manner and could tell an adult if others are sharing things they should not share or are treating others in an unkind or disrespectful manner on online collaborative spaces. Digital citizenship is described with nine categories, however PreK-2 will focus on 4 of these: Digital Literacy (the ability to use new technology quickly and appropriately), Digital Etiquette (appropriate conduct), Digital Rights and Responsibilities (knowing your rights to free speech and privacy, but handling it responsibly online), and Digital Health and Wellness (caring for your physical and psychological well being online).
	History	PK.IC.H.01 Understand that computing technology has changed and improved the way people live, work, and interact.	As computers become interconnected in each aspect of society, more powerful, and students become more reliant on them, students will engage in discussions about how they have evolved since their parents were in school and relate the newest devices they have at home.	K.IC.H.01 Discuss examples of how computing technology has changed and improved the way people live, work, and interact.	As computers become interconnected in each aspect of society, more powerful, and students become more reliant on them, students should be able to describe the number of times computers or devices are accessed each day by teachers or peers in class and discuss what life would be like without them.	1.IC.H.01 Compare how people live and work before and after the implementation or adoption of new computing technology.	As computers become interconnected in each aspect of society, more powerful, and students become more reliant on them, students should be able to identify a list of technologies the school and others have improved in their daily lives. (e.g. Ordering devices by voice, financial institutions, household devices management, robotics, cars that drive themselves, and Social Media sharing applications.)	2.IC.H.0. Recognize how technologies have changed the world, and explore how the needs of society have impacted the changes in technology.	As computers become interconnected in each aspect of society, more powerful, and students become more reliant on them, students should be able to explain or utilize a list of technologies the school and others have improved in their daily lives making connections to real-world problems and solutions. (e.g. Ordering devices by voice, financial institutions, medical fields, household devices management, robotics, cars that drive themselves, and Social Media sharing applications.)
	Safety, Law, & Ethics	PK.IC.SLE.01 With guidance understand responsible digital citizenship (legal and ethical behaviors) in the use of technology systems and software.	People use computing technology in ways that can help or hurt themselves or others. Expose students to sharing devices and leaving the device ready for the next user (closing programs, etc.) Explain how passwords or login methods are used and why we protect devices with these.	K.IC.SLE.01 Practice responsible digital citizenship (legal and ethical behaviors) in the use of technology systems and software.	People use computing technology in ways that can help or hurt themselves or others. Teach students about sharing devices and leaving the device ready for the next user (closing programs, logging out, etc.) Use passwords or other log in methods, learning why we protect devices and programs (such as online assessment) with these. Students should understand they should never post as another person (blogs, SeeSaw, etc.)	1.IC.SLE.01 Practice responsible digital citizenship (legal and ethical behaviors) in the use of technology systems and software. Keep login information private, and log off of devices appropriately.	People use computing technology in ways that can help or hurt themselves or others. Harmful behaviors, such as sharing private information such as last name, location, and school, as well as leaving public devices logged in or sharing login information should be recognized and avoided. Students should understand they should never post as another person (blogs, SeeSaw, etc.) The concept of copyright and using photos and text with permission should be recognized and practiced with guidance.	2.IC.SLE.01 Practice responsible digital citizenship in all technology use. Understand digital data has intellectual property rights (belongs to others) and it can not be claimed as your own.	People use computing technology in ways that can help or hurt themselves or others. Harmful behaviors, such as sharing private information or sharing login information should be recognized and avoided. Students should understand they should never post as another person (blogs, SeeSaw, etc.) Students should be aware of the concept of copyright and using photos and text with permission. This could include images online, or asking a friend if it is OK to post their picture before sharing it digitally.
	Community Partnerships	PK.IC.CP.01 Discuss the fact that a wide range of jobs require knowledge or use of computer science.	Within the inevitable interwoven fabric of society's reliance and innovative machines, students will be required to have basic assumable skills when entering the workforce. Students should be able with guidance, picture digital computing devices and word usage necessary to create a modernized mode of everyday activities in the technological age. An example would be for students to list how a bus driver can use GPS, safety features, and indicators to provide safe travel to school.	K.IC.CP.01 Understand that a wide range of jobs require knowledge or use of computer science.	Within the inevitable interwoven fabric of society's reliance and innovative machines, students will be required to have basic assumable skills when entering the workforce. Students should be able to identify after initial instruction what digital computing devices and languages are necessary to create a modernized mode of everyday activities in the technological age. An example would be for students to list how a bus driver can use GPS, safety features, and indicators to provide safe travel to school.	1.IC.CP.01 Compare and contrast examples of how computing technology has changed and improved the way people live, work, and interact.	Within the inevitable interwoven fabric of society's reliance and innovative machines, students will be required to have basic assumable skills when entering the workforce. Students should be able to identify what digital computing devices and languages are necessary to create a modernized mode of everyday activities in the technological age. An example would be for students to list how a bus driver can use GPS, safety features, and indicators to provide safe travel to school.	2.IC.CP.01. Investigate how computer science has impacted your daily life and the jobs in your community and the world around you.	Within the inevitable interwoven fabric of society's reliance and innovative machines, students will be required to have basic assumable skills when entering the workforce. Students should be able to explain how digital computing devices and languages are necessary to create a modernized mode of everyday activities in the technological age. An example would be for students to create examples and give possible improvements of how a bus driver can use GPS, safety features, and indicators to provide safe travel to school.