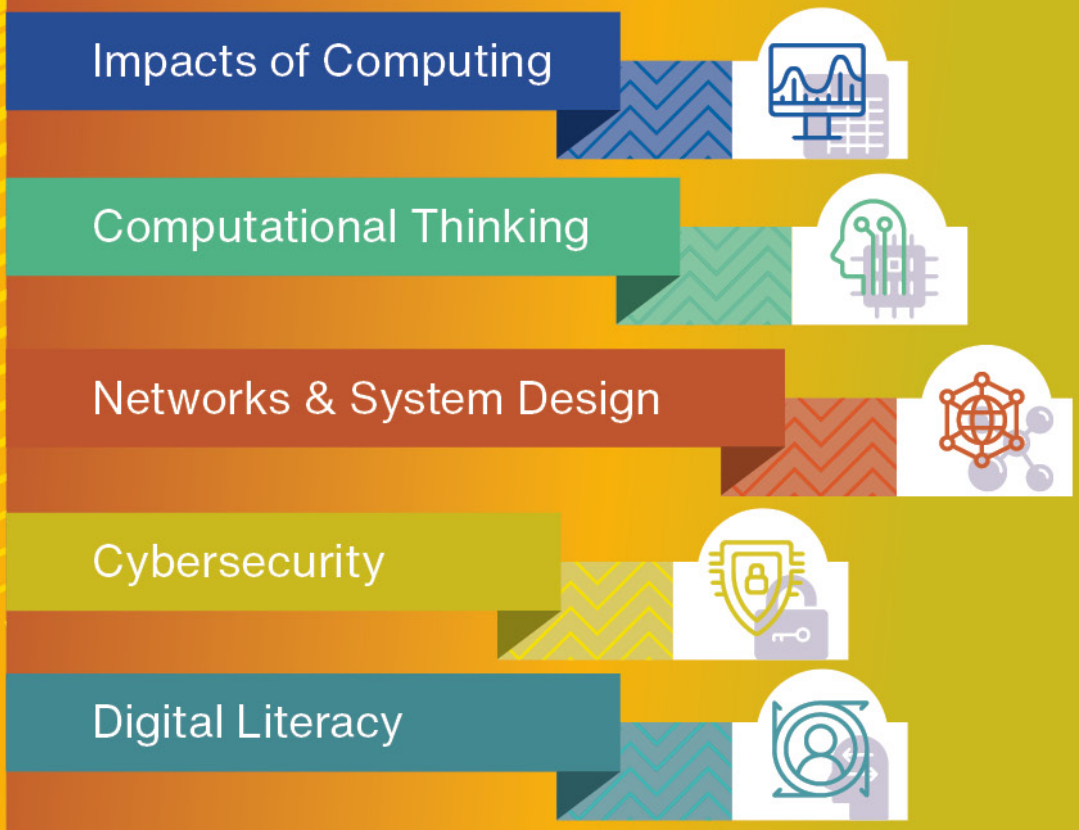
K-12 Computer Science and Digital Fluency Learning Standards

Grades K-12 Standards Examples



New York State Education Department

Contents

**Examples are illustrative only. All curriculum decisions are made at the local level.*

Impacts of Computing

Society

Standard Identifier	Examples
K-1.IC.1	**Example 1:** Students could discuss the differences between playing a board game and a video game or mailing a letter and getting a text message. **Example 2:** Students could create a T chart of things they do that use technology and then compare that to how those tasks were accomplished before technology. Tasks might include looking things up online, map application, online games. **Example 3:** Have students take attendance on paper, then take attendance on the schools SMS system. Discuss the differences. **Example 4:** Students could compare and contrast a digital artifact from a different decade/century to one of their classrooms today.
2-3.IC.1	**Example 1:** Students could discuss how technology has impacted what jobs are available, like IT support and website design. **Example 2:** Students could be shown a card catalog and discuss how much more difficult it was to find library books compared to now when they can use an online catalog (OPAC) to search. **Example 3:** Students could discuss how computer technology has made certain jobs easier.
4-6.IC.1	**Example 1:** Students could discuss how technology, such as GPS systems, have influenced communication, relationships, travel, and the practices of cultural traditions and customs. (SOCIAL STUDIES) **Example 2:** Students could interview an older family member and ask how they were able to keep in touch with people that did not live close by and compare it to the way that students may communicate with someone that lives elsewhere. (SOCIAL STUDIES) **Example 3:** Have students visit webpages that translate into different language and discuss how this can help people with an internet connection access information. (FOREIGN LANGUAGE) **Example 4:** Students could compare answers where one group only uses book resources and another group uses technology to answer questions. They can then discuss how technology changes their availability to information.

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Standard Identifier	Examples
7-8.IC.1	**Example 1:** Students could identify trade-offs with a new and emerging technology, discussing how the technology could improve convenience, but also impact personal privacy. **Example 2:** Students could research how technology such as the Siri and Alexa have changed the way to interact. **Example 3:** Have students research history of computers. What factors made computer more commonplace, what effects did that have on society/jobs? **Example 4:** Have student's snail mail a letter to themselves. Then send an email. Discuss the differences and impacts this has had on society.
9-12.IC.1	**Example 1:** Students could research how better access to information and/or resources affects a population and develop a strategy and/or recommendation to address the issue. **Example 2:** Students could explore the digital divide and see what some of the causes of it. Students could also explore what other issues are related to the digital divide (ex. Poverty) **Example 3:** Seeing a Dr. "online" instead of going to them. Discuss how this can help access to healthcare. Internet access across the world, ex. Africa. How to get it to them? Discuss options and plans that already exist.
K-1.IC.2	**Example 1:** Identify school rules to use computing technologies (e.g., don't share your password). **Example 2:** Explore rules on time limits teachers place on technology use in the classroom and why those limits are important. **Example 3:** After discussing rules related to digital citizenship, students could play a game of telephone. Discuss how students can't stop one person from telling others and how it can change from person to person.
2-3.IC.2	**Example 1:** Compare classroom/playground rules with internet/computer rules on chart paper with the class. Include the ways these rules are meant to keep them safe. **Example 2:** Students could create digital posters that show what information is ok to share and what is not ok to share online. **Example 3:** Compare devices with parental controls turned on versus off. Discuss why these controls exist.
4-6.IC.2	**Example 1:** Students could identify how government regulation of the internet affects people's access to information. (SOCIAL STUDIES) **Example 2:** Students could identify laws at the state level and at the national level that address cybersecurity threats. (SOCIAL STUDIES) **Example 3:** Students could identify commissions that study and provide guidance on laws related to computing technologies. (SOCIAL STUDIES) **Example 4:** Help students to understand the laws about digital information and identify what are considered illegal postings, such as threatening others.

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7-8.IC.2	**Example 1:** Students could research how laws protect intellectual property rights of digital materials and how those laws changed the music industry. (SOCIAL STUDIES) **Example 2:** Students can compare and contrast articles that showcase both sides in recent plagiarism cases in the music industry. (ELA) **Example 3:** Students can discuss how laws that govern road traffic have changed with the advent of autonomous vehicles. **Example 4:** Students can explore the creative commons and learn about why people would want to freely share their works.
9-12.IC.2	**Example 1:** Students could write a persuasive essay about a legal dilemma related to an individual's right to privacy being at odds with the safety, security, or well-being of a community. (ELA) **Example 2:** Students could investigate past internet crimes to see impacts on current regulations. (SOCIAL STUDIES) **Example 3:** Students could discuss how app-based companies have led to new laws about employment and the impact of these laws on employees and employers. (SOCIAL STUDIES) **Example 4:** Students could discuss why copyright protection and attribution are important to intellectual property and how easy it would be to use computer technologies to steal other's work. (SOCIAL STUDIES)

Ethics

Standard Identifier	Examples
K-1.IC.3	**Example 1:** A teacher might keep a class log of all the different computing technologies that they use, see, or read about throughout one school day. **Example 2:** Students could track all of the ways they see technology throughout the weekend to see technology outside of the classroom, such as an electronic toothbrush that tells them how long to brush. **Example 3:** Print pictures of different computer devices that students experience every day. Include pictures of things that might have computer components, but students might not realize are computers (e.g., cash register).
2-3.IC.3	**Example 1:** Students could study the history of cell phones. They were invented to communicate using voice only, but now they can also take pictures, record sound, and allow video conferencing, browsing online content, and playing with apps. **Example 2:** Students can be "inventors" and design a technology that makes their life easier. They can then explore technology that also relates to that field. **Example 3:** Students can discuss the importance of where they get their information from, and why it's important to check their sources.

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Standard Identifier	Examples
4-6.IC.3	**Example 1:** Students might read an informational text about an interdisciplinary topic and be able to explain the connection with computing technologies that were presented in the text. (ELA) **Example 2:** Student can post to a discussion board about a current event or technology trend. (SOCIAL STUDIES) **Example 3:** Students can create digital artifacts about a new technology that they explored.
7-8.IC.3	**Example 1:** A teacher might have students find current articles about computing technologies and discuss them in terms of ethical decisions and actions. **Example 2:** Students can research what are the "ethics" of the internet? Who came up with these ethics? Create their own set of ethics. **Example 3:** Students can research current and past events dealing with technology (Napster) and ethics. (SOCIAL STUDIES)
9-12.IC.3	**Example 1:** Students might develop and present an argument related to the ethical responsibilities of technology companies. **Example 2:** Ethical responsibilities of social media and where they fit in reporting world events. Compare and contrast social media news feed to a real news feed about a current event. (SOCIAL STUDIES)
K-1.IC.4	**Example 1:** A teacher can present a list of spaces (e.g., the classroom, the teacher's house, the library) and have students identify which spaces they can access and which they cannot. Then the class can talk about the differences between these spaces. **Example 2:** The class can create a chart with public and private places and talk about the differences, like a public park versus your back yard or a living room versus a bathroom.
2-3.IC.4	**Example 1:** Create a chart with students that identifies public websites vs. private digital spaces. Examples can be a closed class space to share pictures vs. pictures posted to social media. **Example 2:** After discussing what is ok to share online, students create a "billboard" of themselves. They can draw or write on a pretend billboard sign anything that is ok to share online, no private information.
4-6.IC.4	**Example 1:** Students could explain that things posted to online accounts can be accessed by "friends" and "strangers" that they share data with. **Example 2:** Talk about posting things on social media. What things do they need to keep private? What settings should be turned on? **Example 3:** Students could create a contract with their parents about what is ok and not ok to post publicly.

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7-8.IC.4	**Example 1:** Students could describe how facial recognition surveillance video is used in a store to track customers for security or information about purchase habits. Students might discuss who owns that data and what it is acceptable to do with the data. **Example 2:** Talk about posting things on social media. What things do they need to keep private? What settings should be turned on? **Example 3:** Students could create a contract with their parents about what is ok and not ok to post publicly.
9-12.IC.4	**Example 1:** Students could discuss the monitoring of road traffic. They might discuss the trade-offs: changing signals in real time to improve road efficiency and safety versus concerns around consent for personal data collection and potential sharing of personal data with other agencies like the police department or insurance companies.

K-1.IC.5	**This Standard begins in Grade Band 2–3**
2-3.IC.5	**Example 1:** Students can think about streaming services in terms of what suggestions are offered based on viewing habits.
4-6.IC.5	**Example 1:** Students could discuss how recommendation algorithms influence what people select on video and music websites and applications. **Example 2:** Students could discuss AI that is designed to help professionals make decisions like algorithms that help doctors diagnose patients or that help judges decide on sentencing. **Example 3:** Students can create basic chat bots based on simple questions and then use discuss how these can have real life uses. **Example 4:** Have students use a maps program or GPS to give different route options and then can pick which one to go based on a set of criteria (avoid tolls, highways, fastest, etc.). (SOCIAL STUDIES)
7-8.IC.5	**Example 1:** Students could argue that facial recognition software that works better for certain skin tones was likely developed with a homogeneous testing group and could be improved by sampling a more diverse population. **Example 2:** Students could research current events and determine bias by comparing reports on different sites/blogs/news outlets. (SOCIAL STUDIES) **Example 3:** Students could use a search engine to search images and search on the word "grandma" and discuss whether the results of the images are expected, representative, in what way biased. **Example 4:** Identify and give examples of a bias that relate to the class (ex: girls don't like math, boys don't take dance, boys like blue, girls like pink).
9-12.IC.5	**Example 1:** Students might consider the ethical and social implications of police departments using artificial intelligence to identify and respond to potential criminal activity. Then make recommendations for how to make such a tool increase equity in policing and mitigate unintended bias caused by the system.

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Accessibility

Standard Identifier	Examples
K-1.IC.6	**Example 1:** Students could use both a mouse and a touch screen to operate a computer. **Example 2:** Voice recognition software and other assistive devices and capabilities can be explored.
2-3.IC.6	**Example 1:** Students might compare a travel keyboard with a standard keyboard and note that one is easier to carry around but difficult to type with, while the other might be easier to type with but difficult pack into a bag. **Example 2:** Voice recognition software could be explored to see examples of what makes it work well or not as well. **Example 3:** Compare a laptop/chrome book/tablet to a desktop computer in a chart with the class. Discuss where each would be better used. **Example 4:** Students could be given a choice board to complete a collaborative project. They can then discuss the benefits and drawbacks for each choice to determine which would be best for the given activity.
4-6.IC.6	**Example 1:** Students could use both text and speech when they create and convey information in a game that they program. Students might make recommendations for making an app easier to navigate. **Example 2:** Analyze specific classroom applications from the perspective of different disabilities and offer suggestions.
7-8.IC.6	**Example 1:** Students might notice that allowing a user to change font sizes and colors will not only make an interface usable for people with low vision but also benefits users in various situations, such as in bright daylight or a dark room. **Example 2:** Identifying current accessibility supports and how those can benefit all users. **Example 3:** Using a book review as a guiding document, students can write reviews of devices and/or software applications. (ELA)
9-12.IC.6	**Example 1:** Students could make sure that a website they are designing is ADA compliant. Students might consider the needs of users with learning disabilities when designing an educational app. **Example 2:** Ask students brainstorm a design for differently abled persons – ex. No movement, missing arm, blind, etc. How can they access technology? **Example 3:** Students could do a project where they develop a protype of a device to help students with disabilities use computer technology easier. **Example 4:** Students could create a computer application to assist those with disabilities.

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Career Paths

Standard Identifier	Examples
K-1.IC.7	**Example 1:** Students can take turns identifying jobs that use devices (e.g., cashier, engineer, teacher, IT support, etc.).
2-3.IC.7	**Example 1:** Students could take on the role of "programmer" during computer science lessons. A teacher might emphasize that programmers collaborate to solve problems with code. **Example 2:** Students can study inventions that were created by youth and explore fields of study as a nonfiction project. **Example 3:** Students can search for different types of computer science jobs on the internet with teacher supervision.
4-6.IC.7	**Example 1:** A teacher might provide leveled articles for students to read about people in computer science that reflect diversity in race/ethnicity, gender, disability, sexual orientation, and other characteristics. (ELA) **Example 2:** A teacher could invite experts from various fields to video chat or visit the classroom to showcase what they do and allow students to ask questions. **Example 3:** Have students watch a video on diverse fields in computer science. **Example 4:** Students could research historical figures in Computer Science and computer device history. (SOCIAL STUDIES)
7-8.IC.7	**Example 1:** A teacher might spotlight different careers and then have students develop a mind map for the classroom wall that connects all the different career pathways. **Example 2:** Students can view videos about STEM careers on web sites and create dream boards of what they would like to do as a scientist. **Example 3:** Have students investigate how technology is used is a wide range of careers (e.g., doctor, post office, cashier, teacher, etc.). **Example 4:** Have students research how technology is used in each of their classes.
9-12.IC.7	**Example 1:** A student interested in fashion design could conduct interviews and do research to find out how computer science intersects with that field. **Example 2:** Students can do virtual field trips to labs and various locations to learn about different fields of science. (SCIENCE)

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Computational Thinking

Modeling and Simulation

Standard Identifier	Examples
K-1.CT.1	**Example 1:** Students can study the patterns of snowflakes or butterflies to finish a missing pattern. (SCIENCE) **Example 2:** Studying plants and animals in science can identify a real-world pattern (e.g., butterfly wings) and extend it through their own drawings. (SCIENCE) **Example 3:** Students could study origami and discuss how the folding is a pattern and an algorithm. (ARTS)
2-3.CT.1	**Example 1:** Students could use tangram manipulatives to create models of different buildings in their neighborhood. Then, the class could compare the models to identify common shapes within the building models. **Example 2:** Students can simulate the first four numbers in a number pattern through an unplugged activity (e.g., the teacher labels tiles on the floor with the numbers 1–10 and asks four students to stand on tiles 2, 4, 6, and 8). Then students discuss the relationship between the numbers and the number of tiles between students and then they predict the next value in the pattern. (MATH) **Example 3:** Students can make posters depicting the life cycles of various animals. They can use these posters to identify similarities and differences in the lives of different animals. (SCIENCE)
4-6.CT.1	**Example 1:** Students could use the movement of a rope to simulate a sound wave and then explain what happens (in terms of pitch) if they slow down (lower pitch) or speed up (higher pitch) the oscillations modeled by the simulation of sound waves using the rope. (SCIENCE) **Example 2:** Students could connect input/output to science with plants and the impact when the inputs change (e.g., light, watering). (SCIENCE) **Example 3:** Students an connect it to changing ingredients or amounts of ingredients in a recipe changes the outcome. They can compare this to a computer system. **Example 4:** Students could connect it to exercise and how the heart rate changes based on different inputs. (PHYSICAL EDUCATION)
7-8.CT.1	**Example 1:** Students could compare the accuracy of weather models based on research of the inputs. (SCIENCE) **Example 2:** Students can use simple coding robots that can help students quickly see their input produce an output. **Example 3:** Students could compare different activity trackers and how accurately they calculate heart rate based on different sports. (PHYSICAL EDUCATION)

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Standard Identifier	Examples
9-12.CT.1	**Example 1:** Students collect data and use graphing software to create a linear graph, logarithmic graph, and polynomial graph to determine which best addresses the required output. (MATH, SCIENCE) **Example 2:** Students in government classes could develop a model to predict election results for specific areas based on data related to importance of issues. (SOCIAL STUDIES) **Example 3:** Students in literature classes could gather data on features of books (e.g., number of pages, length of title, number of main characters) to create a model that predicts the genre of the book based on these features. (ELA) **Example 4:** Have students use the word predictor on their phones to see how correct it is. What improvements can they make?

Data Analysis and Visualization

Standard Identifier	Examples
K-1.CT.2	**Example 1:** Students can create and read data from charts and graphs made about their classroom interests. (MATH, SCIENCE) **Example 2:** Take a "field trip" to the cafeteria and have students see what happens when they buy lunch and how it counts in the system. **Example 3:** Students could chart/read data by using numbers, pictures, audio, video, and/or collections of objects.
2-3.CT.2	**Example 1:** Students could identify automated sensors, such as the automated doors, a Fitbit, digital thermometers, and an accelerometer in devices. (SCIENCE) **Example 2:** Students could tour their school building and identify tools used to collect data about students and the school (e.g., bulletin board in the library tracking number of books read by students).
4-6.CT.2	**Example 1:** Students could create a classroom poll or survey using digital tools and report the results to the class. **Example 2:** Put out a survey to the school community to gather feedback on lunch choices, new recess equipment, etc. and see how the survey populates a spreadsheet to show the data. **Example 3:** Students could use digital balances to collect the masses of different objects to identify the heaviest object. (SCIENCE) **Example 4:** Students can enrich their scientific inquiry by using a digital platform to collect data from an experiment. (SCIENCE)

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Standard Identifier	Examples
7-8.CT.2	**Example 1:** Students could collect temperature data with a sensor and distribute a digital form to community members for a community planning project in which they make recommendations about recreational needs in different types of weather. (SCIENCE). **Example 2:** Students could survey students to develop a data table and graph of favorite meals to help develop a menu. (MATH) **Example 3:** Students could collect a variety of data to create a computational artifact in multiple subject areas.
9-12.CT.2	**Example 1:** Students could gather and analyze data on the mood and tone of different music genres using a variety of different tools. Students could use a web scraper or API to count the frequency of specific words in the song lyrics, a sound sensor to measure pitch, or a digital survey to capture people's moods after listening to each song. (MUSIC) **Example 2:** Students could use computational approaches to pull existing data from other sources to create a computational artifact in multiple subject areas.
K-1.CT.3	**Example 1:** Have students poll the class on their favorite food, color, game etc., then compare bar charts, line and/or pie graphs to best show the information. (MATH) **Example 2:** Students could count and chart the number of pieces of each color of candy in a bag of candy, such as Skittles or M&Ms. (SCIENCE, MATH)
2-3.CT.3	**Example 1:** Students could collect temperature data over a week then use it to create a data table and line graph. They could then use the graph to communicate what the weather was like that week. (SCIENCE, MATH) **Example 2:** Compare attendance data within a class and across a grade level comparing the results. (MATH)
4-6.CT.3	**Example 1:** Students could use a spreadsheet program to create a data table and graph of student interests and hobbies in their class and sort them by category. (MATH) **Example 2:** Students could sort a data set of sports teams by wins, points scored, or points allowed. (MATH) **Example 3:** Students could collect a variety of data to highlight relationships and persuade an audience in multiple subject areas.
7-8.CT.3	**Example 1:** Students could access government data sets for science (tide, hurricane data, sunrise/sunset) and sort and analyze the data to get specific information to support a claim. (SCIENCE) **Example 2:** Students can use a database program to create a pivot table to summarize multidimensional player stats from their favorite sport in order to tell a story or support a claim about a player's career. (MATH, SOCIAL STUDIES) **Example 3:** Students could locate tabular data presented in a news article and refine this data to create a visualization highlighting trends in different subgroups. (MATH, SOCIAL STUDIES)

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9-12.CT.3	**Example 1:** Students could combine a data set on average household income by zip code and a data set on health by zip code in order to identify differences in occurrences of asthma based on locale and income in order to persuade an audience to take action on environmental social justice issues. (SCIENCE, SOCIAL STUDIES)

Abstraction and Decomposition

Standard Identifier	Examples
K-1.CT.4	**Example 1:** When giving directions to other students, it may be possible to create a "named" sub-direction that can be a part of other directions (e.g., going to the cafeteria may start with go to the library). **Example 2:** Students could imagine a new student joined the class and is not familiar with the class routines. Then the students could discuss the different steps needed to get ready to go home from school that they would share with the new student. **Example 3:** When solving an addition problem, students can decompose one of the addends into the sum of two smaller numbers. The class can discuss the different decompositions they created. This could be used as part of the math making 10 strategy. (MATH)
2-3.CT.4	**Example 1:** Students could write down possible steps to get from one room to another at school. Students can then compare their steps with their classmates to identify similarities and differences.
4-6.CT.4	**Example 1:** Students could plan a classroom party by separating the task (party) into subtasks such as food, activities, and prizes. The subtasks could then be broken down into further into steps like determining which activities could be present and planning what order to do each activity. **Example 2:** Science experiments where something is built (like a circuit) and what parts are repeated vs changed. (SCIENCE) **Example 3:** Students can determine how to write their name with the least amount of pen strokes, or on a computer program, the least number of steps.
7-8.CT.4	**Example 1:** Students could write a simple game or animation, introducing some functions to name meaningful collections of steps. **Example 2:** Give students a program that creates a number of boxes by repeatedly drawing lines. The students can decompose the program by writing a function to draw one box and calling this function a number of times.
9-12.CT.4	**Example 1:** Students who want to create an app that solves a community problem might first break down the project as: front-end, back-end, and data/API. They could then take one subsystem at a time and break it down further by programmable features (i.e. The front-end might need a form, a button, a menu, and a list of links.)
K-1.CT.5	**Example 1:** Students could look at different classroom instructions, such as "put away the books in the green bin", and create other ways of explaining the instructions with more (e.g., put away the books in the green bin next to the

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	bookshelf) and with less (e.g., put away the books) detail without changing the essence of the task.
2-3.CT.5	**Example 1:** Students could observe that they know how to deliver an item to another classroom just by being told the item and the room number; they do not need to be told how to walk or how to carry the item.
4-6.CT.5	**Example 1:** Students could tabulate the results of a survey noting that they are asked to compute the sum or average of multiple different columns within a dataset. (MATH)
7-8.CT.5	**Example 1:** Students can generalize many similar functions to one function such as generalizing individual functions that draw a square, draw a triangle, and draw an octagon to a single function that draws a polygon based on an input for the number of sides. (MATH)
9-12.CT.5	**Example 1:** Students could modify a function that they implemented to average a set of scores by replacing some lines of code with built-in mathematical functions. (MATH)

Algorithms and Programming

Standard Identifier	Examples
K-1.CT.6	**Example 1:** A teacher might lead students in following an algorithm that tells the class how to line up for recess. Students could follow an algorithm on how to build a simple structure with manipulatives (e.g., blocks, cups, etc.) or how to complete a simple classroom task. **Example 2:** Connect to math steps to show different ways to solve problems. (MATH) **Example 3:** Students could practice origami and learn how to follow simple directions to complete the task. (ARTS) **Example 4:** Students can write down algorithms for processes they do in class.
2-3.CT.6	**Example 1:** Students could plan two routes for a robot or other character to reach the same location. **Example 2:** Students could write “How To” guides for the same task. Students might showcase their work, explaining the steps. (ELA) **Example 3:** Students could use printed out arrows to create an algorithm for different ways of getting through a maze. Students would place the arrows on the grid to get a character through the maze.

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Standard Identifier	Examples
4-6.CT.6	**Example 1:** Students could compare algorithms for making a culturally relevant food item (i.e. pb&j, doner, bahn mi, etc.). Students could then choose an algorithm and explain the reason for their choice. Possible reasons for their choices might include the detail, the fewest steps, or it describes the process most similar to how they make the item at home. **Example 2:** Compare math approaches for a designated problem and see which is more efficient and why. (MATH) **Example 3:** Students could plan two routes to a certain location and compare the routes to see which is faster, less mileage or fewest stop lights. Then discuss which is the best route and why. (SOCIAL STUDIES)
7-8.CT.6	**Example 1:** Students could create and compare routes suggested by a mapping app and refine the route based on knowledge of the area near their school or home. **Example 2:** Students could write an algorithm to draw a geometric shape and refine the algorithm by creating new versions of it until it has no unnecessarily repeating code.
9-12.CT.6	**Example 1:** Students could be asked to look for a specific value in a sorted data set using a sequential search and then a binary search. They can count the number of comparisons it takes to find the value. **Example 2:** Students could model sorting algorithms with books on a bookshelf and contrast different methods in terms of shelf space and the time spent. **Example 3:** Students could use merge sort and bubble sort to order a set of playing cards. **Example 4:** Students could remix a simple program that uses insertion sort to order a class generated data set.
K-1.CT.7	**Example 1:** Given a set of animals that live in the students' region, the teacher might have students come up with different possible labels for groups of like animals (e.g., birds, plant-eating animals, etc.). Then, the teacher can show the students how the animals in each labeled group might change when using animals from different regions. (SCIENCE) **Example 2:** Students could identify concepts in their classroom whose value changes, such as the current date, the current weather, or the current student in a particular classroom job.
2-3.CT.7	**Example 1:** Students could read the lyrics of a song and label its different components (e.g., verse, chorus). They can discuss which components change (e.g., verses) and which stay the same (e.g., chorus). (MUSIC) **Example 2:** Students could create a plan for arranging tables at a party, providing a name for factors such as number of tables and number of attendees. Students can then identify which factors change if there are 10 vs. 20 vs. 100 people who attend.

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4-6.CT.7	**Example 1:** Students can explore how their history of recent documents change over the course of time, depending on what files they are opening. Another example can be music applications that track the number of times a song is played.
7-8.CT.7	**Example 1:** Students could create a fill-in-the-blank story that stores user input in different variables and displays the completed story back to the user. (ELA) **Example 2:** Students could program a game that uses a score variable to store the users points while playing the game.
9-12.CT.7	**Example 1:** Students could create a list and associate it with a variable name then add elements to the list, observing that the same name can be used to access the updated contents. **Example 2:** Students could create a website that includes a form field that stores user input and adds it to a dictionary with key/value pairs.

K-1.CT.8	**Example 1:** Students could identify simple tasks, like teeth brushing, that have repeated steps. **Example 2:** Students could play a familiar song (happy birthday) or recite a poem.
2-3.CT.8	**Example 1:** Students could choreograph a dance using an algorithm. They would identify when dance steps are repeated. (PHYSICAL EDUCATION)
4-6.CT.8	**Example 1:** Students could guide a paper mouse through a maze to find cheese by developing a set of rules for the "mouse" to follow. Rules could include the following: move forward one space and repeat until the mouse hits a wall, and if there is a wall, turn left then move forward. **Example 2:** Students could program a math quiz that uses conditionals to check the user's answers and display a response. The students could use a loop to make a sprite dance when the user completes the quiz. (MATH) **Example 3:** Students could use Boolean expressions and conditionals to analyze a group of numbers.
7-8.CT.8	**Example 1:** Students could remix a program that draws a square by adding nested loops to draw grids. **Example 2:** Students could use loops and compound conditionals to create a program that either prints all multiples of a number or all factors of the number depending on if the number is even or odd. (MATH)
9-12.CT.8	**Example 1:** Students could program a choose-your-own-adventure game that uses multiple choice options and probability to determine outcomes. **Example 2:** Students could program a game that utilizes multiple control structures within a game loop.

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K-1.CT.9	**Example 1:** As a class, students could create an algorithm for a classroom task, like sharpening pencils or washing hands, then try out the directions and fix any errors. **Example 2:** Students could use a simple robot to give directions on a grid. If they weren't successful in coding to the right location, the students could state where the bug was and how they can fix it. They can then reprogram the robot to see if their debugging was successful.
2-3.CT.9	**Example 1:** Different groups can create algorithms for classroom tasks, and the other groups can follow them and identify what was wrong in the instructions given and what needs to be clarified. **Example 2:** Teachers could give the students directions to go to a specific landmark but include one wrong turn. Students identify the wrong turn and determine the correct set of directions. **Example 3:** Discuss proof reading and why fixing mistakes helps your work. Include homonyms. (ELA)
4-6.CT.9	**Example 1:** Students could describe how a sprite will behave when different values are passed into a conditional statement. **Example 2:** Students could consider code snippets with bugs and collaborate with peers to find the errors by reading and discussing the code. **Example 3:** Students can create steps for a problem in multiple subject areas, then have another student follow the steps exactly. Describe and debug any issues.
7-8.CT.9	**Example 1:** Students could trace through a program using a variety of inputs to determine the result. **Example 2:** Students could look at a premade code and what the program should look like after the code is executed. They could then determine where the bug is and fix the code.
9-12.CT.9	**Example 1:** Students could test the boundaries of input values and the outcome of each branch in a conditional statement.

K-1.CT.10	**Example 1:** Students could develop a plan with the class to compare two characters in a story. The class could create a chart to document their comparison with sections of the document numbered to correspond to each step of the plan. (ELA) **Example 2:** Have students outline the steps to tying their shoes or getting ready for lunch and create a diagram showing each of the steps.
2-3.CT.10	**Example 1:** Students could develop a story map or storyboard to illustrate the steps their class takes to walk from their classroom to the cafeteria. **Example 2**: As a group, students can create an algorithm representing a process of getting ready for school in the morning. Students then might revise the algorithm to reflect their own morning routines. **Example 3**: Students could modify an existing class routine to accommodate a special event or schedule change.

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4-6.CT.10	**Example 1:** Starting with a specific issue or topic (e.g., recycling) students explore the issue or topic and then use the iterative design process to create and deliver a presentation to the class describing the different steps that were taken to revise the presentation. (SCIENCE) **Example 2:** Students could play a game where they try to solve problems faster than a computer. They can then describe the solutions they tried and how the revised their approach. **Example 3:** Students should keep a reflective journal for each of their coding projects. They could explain the problem their program is solving, how they decided how to do it including revisions they made along the way, debugging they did, and how the program worked. (ELA) **Example 4:** Students could write a persuasive essay on a topic of their choosing, get feedback from a classmate on what was or was not convincing, and then revise the essay. They can also describe how they revised their essay based on the classmate's feedback. (ELA)
7-8.CT.10	**Example 1:** Conducting 'empathy interviews' (as part of the design thinking process), students can discover a particular problem or issue a person wants solved. Then, using this information, students can design a program/'app' that is meant to solve the identified problem in a meaningful way. **Example 2:** As a class, students can create a guidebook for next year's students. How to use the programs, what to do if something goes wrong, year-long project. (ELA) **Example 3:** Students can take pictures of their work and record a video of them explaining their steps for classmates to try.
9-12.CT.10	**Example 1:** Using a web-based version control platform to share and comment on a program/app, students can engage in collaborative practices common among software developers. Additionally, writing in-line comments within one or more source code file(s) allows students to communicate how a particular part of a program is intended to function. **Example 2:** Students could use in-line code comments to document and explain what their code should do. Teachers should model this and explain how the documentation allows for easier debugging of their programs.

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Networks & System Design

Hardware and Software

Standard Identifier	Examples
K-1.NSD.1	**Example 1:** Students could label a diagram of a computing system with the words input and output, or students could sort images of computer components into input and output columns on a t-chart. **Example 2:** Students can identify examples of input/output in their daily lives (e.g., putting money into a vending machine and getting out a ticket/soda/toy) and work with the teacher to group the examples into the input or output categories. **Example 3:** Print pictures of different computer devices that students experience every day. Include pictures of things that might have computer components, but students might not realize are computers (e.g., cash register). **Example 4:** Discuss how input and output can be similar to our 'human senses', such as hearing is input, and touch is both input/output.
2-3.NSD.1	**Example 1:** Students could use multiple ways to receive data such as keyboard, microphone, camera, and a stream of data; and on ways it can present results, such as [changing] pictures on a screen, sounds, and [lists of] numbers. **Example 2:** Students can try out different input/output methods, such as text can be input through a keyboard, a touch screen, or even microphone (voice to text). **Example 3:** Student could use sensors (e.g., temperature, motion, heat, light) to collect input. (SCIENCE)
4-6.NSD.1	**Example 1:** Students could make recommendations on how to improve a tool, device, or app based on their experiences or those of their classmates. **Example 2:** Students studying the Industrial Revolution can propose improvements to inventions during that time. (SOCIAL STUDIES) **Example 3:** Discuss sensors and different outputs beyond typical, i.e., if temperature rises then ac is turned on.
7-8.NSD.1	**Example 1:** Students could design a game controller that is accessible for a person with limited hand and arm movement. Students could design apps that encourage healthy living and consider factors like motivation to use the app and ease of use. **Example 2:** Students can be 'inventors' and design a technology that assists an individual with a disability by making it easier to access technology.

**Examples are illustrative only. All curriculum decisions are made at the local level.*

Standard Identifier	Examples
9-12.NSD.1	**Example 1:** Students might design medical devices that can be embedded inside a person to cure a specific illness, regulate a specific function of the body, or give enhanced ability. **Example 2:** Students might propose embedded systems that address public health and safety such as coming up with solutions that use embedded systems in a car to address car accidents, texting while driving, pets overheating when left alone in a car, etc. **Example 3:** Students can design a new hybrid car or household appliance that uses less unrenewable energy.
K-1.NSD.2	**Example 1:** Using images of different computing devices (e.g., computer station, tablet, printer), students could match labels with hardware components. **Example 2:** Students can create a technology vocabulary journal. (ELA) **Example 3:** Students can compare devices that do (e.g., a smart board marker, a calculator, a tablet) with those that do not (e.g., a pencil, an abacus, a book).
2-3.NSD.2	**Example 1:** Students can explain how to use apps, web browsers, operating systems, as well as internal hardware, CPU, motherboard, and memory. **Example 2:** Students can discuss the difference between apps, browsers, and operating systems. Teachers can compare the body/mind connection to hardware/software to help students understand the differences.
4-6.NSD.2	**Example 1:** Students can draw the computing system, program an animation of how the computer system works, or act it out in some way. **Example 2:** Students can sketch or diagram their computer and explain what each part does and how it is part of the overall computer.
7-8.NSD.2	**Example 1:** Students could design an app for finding free filtered water stations in the area that would use GPS, magnetometer, and touch screen sensors as well as the phone's WIFI and a map API.
9-12.NSD.2	**Example 1:** Students could create a diagram representing the levels of interaction involved in text editing. They would show that software interacts with the operating system to receive input from the keyboard, convert the input to bits for storage, and interpret the bits as readable text to display on the monitor.
K-1.NSD.3	**Example 1:** Students might notify a teacher when an application or device is not working as expected. Rather than saying, "It doesn't work," a student might describe things like, "The device will not turn on," or "The sound doesn't work."
2-3.NSD.3	**Example 1:** Students should try to fix a simple error like their monitor will not turn on (make sure it's plugged in).
4-6.NSD.3	**Example 1:** A teacher might lead students in creating a classroom checklist for basic problems, such as the device not responding, no power, no network connection, application crashing, no sound, or password entry not working. **Example 1:** Students can create their own basic troubleshooting guide for simple computer issues to publish to students in lower grades. (ELA)

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7-8.NSD.3	**Example 1:** Students could follow a troubleshooting flowchart that guides them through a process of checking connections and settings, changing software to see if hardware will work, and swapping in working components. **Example 2:** As a class, students can create a guidebook for next year's students. How to use the programs, what to do if something goes wrong, year-long project. (ELA) **Example 3:** Students can create scaffolded with flowcharts or checklists for their diagnostic process to fix any problems.
9-12.NSD.3	**Example 1:** Students could create step by step instructions for a help desk employee. (ELA) **Example 2:** Students could create a troubleshooting flowchart for anyone using a school device. **Example 3:** Establish a student-run help desk for other students. Have them be a resource for those who are having simple issues. Students could model how to troubleshoot for other students.

Networks and the Internet

Standard Identifier	Examples
K-1.NSD.4	**Example 1:** Students could explain how they would send a letter to a person in another city. They can identify the rules for mailing letters (e.g., using stamps), and why those rules exist (e.g., because getting the letter from point A to point B involves lots of different people). The rules help keep everything coordinated. **Example 2:** Students can pretend to be parts of a network and play the game "telephone" to understand how a message can travel.
2-3.NSD.4	**Example 1:** Students could learn about Morse code, which converts letters into a series of taps. This allows the message to be sent through physical objects (e.g., tapping on a wall to send a message to someone in the next room). The taps can also be converted into electrical signals that can be sent through wires. **Example 2:** Students could research how telephones work.
4-6.NSD.4	**Example 1:** The teacher could run a series of live simulations in which students act out the flow of information through servers, routers, and other devices to transmit a message. **Example 2:** A teacher might have students cut up a map of the United States, then place the states in envelopes and transmit the "packets" through a physical network of students. At the destination, the packets could then be reassembled back into a map of the United States. (SOCIAL STUDIES)

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Standard Identifier	Examples
7-8.NSD.4	**Example 1:** Students could devise a plan to represent a long text-based message as chunks of data and how it would be reassembled at the destination. An unplugged example would include the use of zip codes and barcodes for a letter to travel through the post office system. **Example 2:** Students can simulate how information is sent in packets by doing a relay race. Each student will have a different part of the message and compete to see who can race to get the whole message to the other side the fastest.
9-12.NSD.4	**Example 1:** Students could explain how hierarchy in the DNS supports scalability and reliability. **Example 2:** Students could create a computational artifact that explains the path of data transmission from their device to a website hosted on another continent and back using the network (including but not limited to servers, routers, etc.).
K-1.NSD.5	**Example 1:** Students can make a list of devices they use at home and at school that store their name.
2-3.NSD.5	**Example 1:** Have students identify multiple places to store information, like hard drives, thumb drives and cloud storage.
4-6.NSD.5	**Example 1:** Students could explain the difference between video games that are stored locally, that you can play without internet, and other games are stored on a server and cannot be played without internet. **Example 2:** Students can compare different TV/Movie offerings based on how the media is stored and accessed (DVR, cloud, download, etc.). **Example 3:** Students could explain the difference between saving a file to their device (local copy) and saving it to the network or cloud (remote copy). Then figuring out which one they would no longer be able to access if the internet went down.
7-8.NSD.5	**Example 1:** Students could create a diagram that illustrates the use of remote storage in cloud computing, a school's data server, or distributed media. Students could discuss how local copies of data are synced with data from the remote server. **Example 2:** Have students understand storage sizes and what suits their needs, the needs of small businesses, schools, large businesses, etc.
9-12.NSD.5	**Example 1:** Students could create a diagram that illustrates how a photo they take with their phone gets uploaded to the internet and then synced to their other devices. **Example 2:** Students might discuss how cloud computing affects the scale of networks and access to shared resources. **Example 3:** Discuss and research how emerging technologies have advanced health care services. **Example 4:** Students could discuss how companies are responding to increased use of streaming services and bandwidth limitations.

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Cybersecurity

Risks

Standard Identifier	Examples
K-1.CY.1	**Example 1:** Students could discuss what might happen if they post information on a bulletin board in the hallway of school (public) about a surprise birthday party for a classmate (private).
2-3.CY.1	**Example 1:** Students could take strips of paper with information like phone numbers, birthdays, pets names, passwords, etc. Then place the paper strips into the categories “ok to share with everyone,” “ok to share with people you know,” and “keep private” on a shared chart. **Example 2:** Create cards with two characters digital footprints. One person would have a digital footprint that contains a lot of personal and private information, the other would have some. Have students discuss when and what is ok to share.
4-6.CY.1	**Example 1:** Students could discuss the type of data needed for different adversarial behaviors such as information that can be used for identity theft, cyberbullying, political influence, or ransomware attacks.
7-8.CY.1	**Example 1:** Students could think about their personal information and devices that need to be protected and discuss how adversaries might use the data or computing resources if accessed.
9-12.CY.1	**Example 1:** Students could research events in business, industry, and government involving organizational security breaches and pinpoint the type of data and resources compromised and how it was used. **Example 2:** Students could research past events how some systems are hacked - baby monitors, ring doorbells, Alexa, Nest, etc.

Safeguards

Standard Identifier	Examples
K-1.CY.2	**Example 1:** Students could demonstrate that they know how to log in and out of any devices and accounts used for classroom work or other applications. **Example 2:** Discuss why passwords are important and what makes a password strong or weak.
2-3.CY.2	**Example 1:** Students can discuss and chart positive online behaviors and harmful behaviors that can put their personal information at risk.

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Standard Identifier	Examples
4-6.CY.2	**Example 1:** Students could create a guide to everyday digital security safeguards for students in another grade. The guide could teach them how to implement different safeguards in the classroom and at home. (ELA)
7-8.CY.2	**Example 1:** The teacher might provide different scenarios and students can pick safeguards appropriate to the situation from a list that the class generated together. **Example 2:** Students can identify situations where common safeguards would not work. For example, 2-step authentication will not work if someone is using their mobile phone as the authentication device and they are in an area without cell phone coverage.
9-12.CY.2	**Example 1:** Formulate recommendations for setting up a secure home or small business network.
K-1.CY.3	**This Standard begins in Grade Band 2–3**
2-3.CY.3	**Example 1:** Students could discuss who has access to shared accounts and why it might be both helpful and risky. They might consider an account that is shared with family members to stream movies or an educational app that is shared by the entire class.
4-6.CY.3	**Example 1:** Students could list the pros and cons of sharing pictures and information about their activities on social media. **Example 2:** Share examples of viral moments and how the people are impacted. Explain what “clickbait” is and show examples of it. **Example 3:** Students can discuss ads they see that might be too good to be true. Students can also discuss scams and how they try and trick you to give information.
7-8.CY.3	**Example 1:** Students could examine the pros and cons of using different methods of authentication, for example passwords, biometrics, or key-fobs and the trade-offs of using single-factor vs multi-factor authentication.
9-12.CY.3	**Example 1:** Students could analyze high profile cybersecurity breaches from the perspectives of competing audiences, including individuals, corporations, privacy advocates, security experts, and government.
K-1.CY.4	**Example 1:** Students could brainstorm different ways to send a secret message. **Example 2:** Students can use coded messages to learn letters and sounds. (ELA)
2-3.CY.4	**Example 1:** Students could make their own simple code with a partner and exchange messages.
4-6.CY.4	**Example 1:** Students could use a cipher or Vigenere Square to encrypt a message for a classmate. the classmate can use the same cipher to decrypt the message.
7-8.CY.4	**Example 1:** Students could do a basic frequency analysis of a message encrypted with a Caesar Shift to determine how easy it would be to break it.

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9-12.CY.4	**Example 1:** Students could research the role of Navajo Code Talkers and the Enigma machine during World War II and how it relates to the use of private and public keys. (SOCIAL STUDIES) **Example 2:** Students could do a report on the cryptography used to secure Bitcoin and what general ways it could be improved. (SOCIAL STUDIES)

Response

Standard Identifier	Examples
K-1.CY.5	**Example 1:** Based on classroom rules, students could explain when and where it is appropriate to click on links which can be words, pictures, etc.
2-3.CY.5	**Example 1:** Students could explain that they should not click on pop-ups or click-bait in an app or online, and also report any unusual behavior such as applications not loading or opening. **Example 2:** Students explain the similarities between chatting online and real life with strangers. **Example 3:** Students can discuss the impact of accidental voice ordering or calling.
4-6.CY.5	**Example 1:** Students could review sample email messages and describe features that suggest suspicious behavior. **Example 2:** Have students research how to recognize “spam” and create a warning guide.
7-8.CY.5	**Example 1:** Students could explain the value of running malware scans and removal tools on devices as soon as unusual behavior is observed. **Example 2:** Students could recommend changing passwords immediately after an account is compromised and create sample secure passwords and passphrases.
9-12.CY.5	**Example 1:** Students could discuss how organizations could respond to data theft involving customer information.

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Digital Literacy

Digital Use

Standard Identifier	Examples
K-1.DL.1	**Example 1:** Students can practice spelling their name and sight words. (ELA) **Example 2:** Students can use a keyboard to type words beginning with a letter of the alphabet for a class book or presentation. (ELA)
2-3.DL.1	**Example 1:** Students use a keyboard to type a narrative written during a writing workshop to create a class book of stories. (ELA)
4-6.DL.1	**Example 1:** Students use a school-selected online keyboarding program to learn the fundamentals of keyboarding. **Example 2:** Student analyze their rate progress and letters that are challenging using data produced by the program. They can then create a presentation using those data to show their progress.
7-8.DL.1	**Example 1:** Students regularly type on keyboards as they use technology throughout the school day. **Example 2:** Students can learn how to write mathematical equations and DBQ's for more practice. (MATH, SOCIAL STUDIES) **Example 3:** Students could use keyboarding techniques in multiple subject areas to type papers, and create presentations, or reports.
9-12.DL.1	**Example 1:** Students are able to type on a keyboard with enough automaticity that they can fluently and fluidly transfer thoughts to computer. **Example 2:** Have students try to fill in a blank keyboard from memory.
K-1.DL.2	**Example 1:** Students collaboratively build a list of their favorite books, and the teacher posts the list on their class website.
2-3.DL.2	**Example 1:** Students can each poll the class on different likes/dislikes and present the information to the class. **Example 2:** Students use a shared online document to add to a graphic organizer about a book read in a Guided Reading lesson. (ELA)

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4-6.DL.2	**Example 1:** Students use a school-approved digital tool to type a request to an expert (author, zoologist, museum curator), asking him or her to speak to their classroom; collaboratively generate a list of questions to ask; and connect with the expert over a digital conferencing tool. **Example 2:** Students use a shared online document to provide feedback on peers' work and track changes over time. **Example 3:** Students can use email in an appropriate manner to ask a teacher or other school professional a question. They can state when it is appropriate to email someone versus instant message versus phone call.
7-8.DL.2	**Example 1:** Students communicate through digital conferencing tools with students from other countries about voting rights. Students collaboratively create an original product (report, presentation, podcast) based on the conversations, post to a shared site, and provide feedback to peers on their products. (ELA, SOCIAL STUDIES) **Example 2:** When using a shared online document, students know how to share a document with other students so that they can work on the document collaboratively. **Example 3:** Students could use communication and collaboration in multiple subject areas to create group presentations, or reports.
9-12.DL.2	**Example 1:** Students identify a local issue of interest/concern, collaborate on a solution, collaboratively create a digital product, and give presentations to authentic audiences. **Example 2:** Students can create a school PSA video with narration in a group about a current events topic (environment, pet adoption, no smoking, etc.). (SOCIAL STUDIES)

K-1.DL.3	**Example 1:** Students use a teacher provided key word to find appropriate picture(s) related to a search. **Example 2:** Students each create 1 page for searched images for an alphabet, or animal book. (ELA)
2-3.DL.3	**Example 1:** Students can be given a topic and they decide on a short list of key words to search for that topic. **Example 2:** Students could use search tools in multiple subject areas on a multitude of topics.
4-6.DL.3	**Example 1:** Students search for articles published after 2018 and pictures licensed under the Creative Commons Non-Commercial license to create a presentation on endangered ecosystems. (SCIENCE) **Example 2:** Students can create an Explain Anything video to show the steps in a science experiment and display the artifacts in the process. (SCIENCE) **Example 3:** Students can use a search to find information on their town history and share with the class. (SOCIAL STUDIES)

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7-8.DL.3	**Example 1:** Students compare results when they search on multiple engines; conduct a search, clear their cache/cookies and then conduct a search again; and conduct a search on a mobile device versus a desktop. **Example 2:** Students can compare web searches and databases searches and evaluate how databases are going to produce more reliable results compared to web searches that have to process more data. **Example 3:** Students can experiment with searching with one keyword versus multiple or key phrases.
9-12.DL.3	**No Standard; Mastery reached by Grade 8**

K-1.DL.4	**Example 1:** Students will begin to use digital tools to create something, like a class presentation or an About Me document. (ELA) **Example 2:** Students could use a digital camera and other tools to create a project about plant growth. (SCIENCE)
2-3.DL.4	**Example 1:** Student can use presentation software for an individual book report or for a group project. (ELA) **Example 2:** Students could use a variety of digital tools and resources to create, revise and/or publish artifacts in multiple subject areas.
4-6.DL.4	**Example 1:** Students create a digital story to demonstrate understanding of a concept, such as the branches of government. (SOCIAL STUDIES) **Example 2:** Students can show the life cycle of plants or animals using a presentation tool. (SCIENCE)
7-8.DL.4	**Example 1:** In collaborative groups, students create anti-cyberbullying commercials and an accompanying infographic for parents on ways they can help kids spot and report cyberbullying.
9-12.DL.4	**Example 1:** For a project that allows students to represent learning in different/multiple ways, students choose the tools to use and write a justification why they were the best choices.

K-1.DL.5	**This Standard begins in Grade Band 4–6.**
2-3.DL.5	**This Standard begins in Grade Band 4–6.**
4-6.DL.5	**Example 1:** Students start to identify similar buttons in word processing programs, or in other applications.
7-8.DL.5	**Example 1:** Students familiar with a desktop presentation software (PowerPoint/Keynote) use an online presentation tool to create a presentation. **Example 2:** Students familiar with spreadsheets can start to explore database software.
9-12.DL.5	**Example 1:** Students choose an emerging technology and use it create a simulation of a principle of physics. (SCIENCE)

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Digital Citizenship

Standard Identifier	Examples
K-1.DL.6	**This Standard begins in Grade Band 2–3.**
2-3.DL.6	**Example 1:** The teacher leads a discussion about photos found online: how people post them, how they sometimes let other people see them, and sometimes they choose to keep them private, and how if the students are playing a game and the game wants to take their picture, they need to ask a responsible grown-up if it's okay. **Example 2: The teacher can** introduce students to the differences between blogs, social media, news sources and provide examples of public records, personal web pages, social media posts, etc.
4-6.DL.6	**Example 1:** Students use a tool that displays archived versions of websites (such as "Wayback Machine") to research how information is available even if it seems to be deleted. **Example 2:** Introduce students to "terms and conditions"/rules of websites. **Example 3:** Students could analyze school-used digital resources looking at student privacy and explain why each site is OK or not OK for school.
7-8.DL.6	**Example 1:** Students create guides for an adult (family member, celebrity, fictional character) on how to manage online identity and actions that affect someone's digital footprint. **Example 2:** Have students review the "terms and conditions" of a commonly used site/app. Have them note anything surprising or confusing. **Example 3:** Students can research how someone's digital footprint negatively impacted their life.
9-12.DL.6	**Example 1:** Students create diagrams/infographics that illustrate the myriad sites that might collect data on an individual, the accumulation of which is a digital footprint. **Example 2:** Students create an online portfolio showcasing sample work and resume that could be shared with potential employers or college admissions boards. **Example 3:** Have students pretend to be college admissions and give them some sample digital footprints of potential students. Who would get into the college? Who would not? Why?
K-1.DL.7	**Example 1:** Students hold up red light/green light signs at teacher prompts about actions with technology/in online environments, such as "Share your password," "Go to sites linked from our class webpage," "Write something mean about someone," etc. Actions could be added to a running list on a chart displayed in the classroom. **Example 2:** Students as a class can compare appropriate/ inappropriate online behavior to appropriate/ inappropriate in-person behaviors. **Example 3:** Students could identify why they should find and use truthful information online.

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2-3.DL.7	**Example 1:** Students can be part of a digital classroom and discuss way to keep it a safe space like no name calling, or rude comments. **Example 2:** Students could discuss what some of the consequences are for spreading or using false information, and how to make sure it's true information.
4-6.DL.7	**Example 1:** Students create PSAs on online safety and cyberbullying to include in district/school newsletters/newspaper or make posters to put up in the middle school. **Example 2:** Students could write original songs about cyberbullying, identifying it when it happens and what to do when it occurs. (MUSIC) **Example 3:** Students can create a classroom/school/home online safety plan. Discuss any differences and similarities. **Example 4:** Students could identify how sharing personal information, clicking on pop-ups/ advertisements/ phish-bait, and allowing access to their camera could be unsafe.
7-8.DL.7	**Example 1:** Students work in collaborative groups to create action plans to decrease instances of cyberbullying among teens. **Example 2:** Student can put up posters on what to do if you are being cyberbullied. (ARTS) **Example 3:** Students can research consequences of cyberbullying.
9-12.DL.7	**Example 1:** Students create an individual action plan on how they would prevent multiple types of cyberbullying and/or a compromise of their digital identity. **Example 2:** Students can research student mental health and the impact of social media and other technologies.

The examples contained within this document were created by educators who served on the Computer Science and Digital Fluency Standards Workgroups. The examples are meant to be illustrative only and were designed to be helpful for teachers when planning lessons. To assist in these efforts, some examples include a specific interdisciplinary connection distinction. NYSED does not require any curriculum or instructional strategy. All curriculum decisions are made at the local level.