

Owen D. Young Central School

2316 State Highway 80 , Van Hornesville, NY 13475, 13361
Revised March 2021



District Technology Committee

Brennan Fahey
Cory Pike
Christine Tucker
Stephen Smith
Jeffrey Rupp
Kit Hutchinson
Lisa Wilber
Nicole Mariotti
Dino Alicajic

Building Principal/Superintendent
Assistant Principal
Academic Coach
Technology Coordinator
Science Teacher
Social Studies Teacher
Library Media Specialist
Elementary Teacher
Community Representative

Table of Contents

	PAGE
District Technology Committee	0
Table of Contents	1
Owen D. Young CSD Mission and Vision	1
Vision for Technology Plan	2
Teaching and Learning Framework with Technology	2-3
District Technology Goals	3-5
NYS K-12 Computer Science and Digital Literacy Standards	5-6
Technology Plan Evaluation	7
District Technology Appendix A-D	8-37
NYS K-12 Computer Science and Digital Literacy Standards (Appendix A)	
National Education Technology Standards for Teachers (Appendix B)	
Infrastructure, Hardware, and Software (Appendix C)	
Budget (Appendix D)	
Acceptable User Policy	38
Parent/Student Computer Permission & Internet Agreement Slip	42
	44

The Owen D. Young Central School District must use technology in order to prepare students for their futures. Technology is key to learners' achievement of world class standards. Students must be able to access information, manipulate and understand data, synthesize concepts, and creatively express ideas.

This plan conveys our vision statement, our beliefs in technology instructional goals as they relate to technology skills. This plan provides access to the use of technology, enabling students to become lifelong learners; technology in this context includes: designed and networked computer, telephone, electronic data, and video systems to enhance our district's communication, information processing, and productivity needs.

Technology is also an administrative tool which brings efficiency to the management and assessment realms of education. This is especially important as teachers use performance-based assessment to continuously improve students' learning.

I.) Vision for the Technology Plan

District Instructional Technology Plans, required by Commissioner's Regulation 100.12, will support the mission of the NYS Board of Regents. It will ensure that every child has equitable access to the highest quality educational opportunities, services, and supports in schools that provide effective instruction aligned to the state's standards, as well as positive learning environments so that each child is prepared for success in college, career, and citizenship. Reviewing the Digital Literacy Standards, and National Educational Technology Standards (NETS) (See Appendix A & B), college and career readiness standards, Next Generation Learning Standards, as well as career and technical education requirements created this vision.

We will utilize instructional technology to prepare our students to:

- meet the Digital Literacy Categories for grade level performance indicators as shown in Appendix A & B;
- be college and career ready;
- embark on Career and Technical Education Pathways;
- understand the role of technology as a tool for research and learning;
- have the ability to communicate and create collaborative communities with others locally, nationally, and globally;
- be engaged in the learning process by using technology to further support their inquiry;
- be knowledgeable and aware of electronic resources and be discriminating consumers of information;
- be responsible digital citizens aware of their online footprint;
- graduate with technology competencies required for a community of global learners, ensuring they have the tools to be successful in the 21st century.

II.) Teaching and Learning Framework with Technology

This technology plan was developed to provide our teachers and students with the many and varied educational benefits of technology-enriched learning environments. When new and emerging technologies are carefully integrated into the curriculum, and skillfully applied to instruction by well-trained teachers, students have opportunities to achieve the highest levels of academic success and personal development. Educational technologies enable teachers and students to enjoy diverse teaching and learning experiences, access information, and establish connections that extend beyond the school community. With educational technology, we can:

- Engage students in inquiry-driven and project-based learning by providing tools for research, communication and creation.
- Bring real-world experiences to the classroom through simulations, virtual field trips, real-time interactive video, video conferencing with experts and peer-to-peer networking.
- Motivate and challenge students with varied and participatory learning activities.

- Accommodate the learning needs of all students through principles of universal design.
- Foster the development of communication and collaboration skills by enabling participation in online global environments.
- Stimulate creativity and innovation by giving students tools with which to question, explore, discover, solve and create.

In summary, educational technology gives us the power to transform teaching and learning. This Technology Plan will guide us as we construct, foster, and thrive in these new 21st Century learning environments.

III.) District Technology Goals

Goals for the Instructional Technology Plan

Goal 1.0: Provide secure access to technology for students and staff.

- Maintain a secure wireless network in school to meet the instructional bandwidth requirements;
- Provide a plan to acquire and maintain interactive whiteboards in designated classrooms;
- Continue to provide and update computers throughout the district with the latest software and capabilities through a maintenance upgrade plan (i.e. computers, projectors etc.). Continue to provide a laptop for all teachers to have network access from anywhere within the district in order to facilitate information gathering and collaboration;
- Ensure that internet speed and bandwidth meets the district needs
- Create, for the district, the ability to service and repair education technologies internally with the Technology Department;
- Update technology readiness for PARCC and NYS 3-8 assessments;
- Provide students with access to current electronic resources that will support their learning.

Goal 2.0: Utilize educational technology appropriately to improve learning and monitor student progress.

- Integrate technology with instruction in all curriculum in order to provide students with a variety of learning opportunities;
- Use technology-rich environments to help students solve problems, make decisions, and express themselves;
- Use technology to access the global education community;
- Use technology that accommodates each student's learning style and needs;
- Use student information systems to provide continual updates on student progress (School-tool) and allow teachers, students, and parents to view student progress via the Internet securely;

- Ready every student to be technology proficient for Partnership for Assessment of Readiness and Careers (PARCC) assessments and classroom testing;
- Provide appropriate technology for schools to be ready for online testing (NYSED);
- Utilize online social media to promote academic interaction in a secure, district-moderated online platform which promotes and models digital citizenship;
- create interdisciplinary lessons using available technologies to enhance student learning;
- increase proficiency at utilizing technology as a teaching tool through the use of classroom Interactive Display, document cameras, Chromebooks, laptops and other devices;
- guide students to become independent, self-determining learners who seek out answers to complex problems;
- provide interactive experiences to improve student understanding of concepts;
- prepare learning experiences that use technology appropriately to enhance instruction.

Goal 3.0: Provide professional development and ongoing support, enabling staff to be knowledgeable when working in technology-rich environments.

- Provide opportunities for staff to participate in professional development, so that participants will be able to effectively apply educational technology to instruction and communication;
- Technology Support (4 days per week) will provide technical support in the district that will maintain instructional technology tools;
- The district will provide a technology integration specialist (one day per week) to address software and instructional learning opportunities
- Administration will work with a group comprised of Library Media Specialists, or the technology integration specialist and classroom teachers to share new technologies and promote the use of new software and apps;
- Create professional learning communities with other teaching professionals to remain current on best practices related to technology.

Goal 4.0: Expand partnerships between the district and businesses, community residents, and parents through the use of technology.

- Use the district homepage and social media as a means of communicating district news to parents and community members;
- Maintain parent portal and other grading software for parent accessibility (SchoolTool) ;
- Contact local businesses, colleges, and/or community organizations to form partnerships in regards to technology.

IV.) New York State K-12 Computer Science and Digital Literacy Standards

The NYS K-12 Computer Science and Digital Fluency Standards are organized into five concepts: Impacts of Computing, Computational Thinking, Networks and Systems Design, Cybersecurity, and Digital Literacy.

Each standard has at least two sub-concepts and then standards within each that are broken down in grade bands K-1, 2-3, 4-6, 7-8, and 9-12. Students are expected to master the standards by the end of the last year of the grade band. The standards are not organized as a sequence so they can be taught in any order.

Concept: Impacts of Computing

Computing affects many aspects of the world at local, national, and global levels.

Individuals and communities influence computing through their behaviors and cultural and social interactions. In turn, computing influences new cultural practices. Informed citizens understand the ethical and social implications of the digital world, including equity and access to computing and computing technologies. The Impacts of Computing standards promote an understanding of the evolving impact of computing technologies on society through many lenses, including personal, social, cultural, accessibility, legal, economic, and ethical.

Sub-Concepts: Society, Ethics, Accessibility, Career Paths

Concept: Computational Thinking

Computational thinking involves thinking about and solving problems in ways that can be carried out by a computer. Computational thinking not only underpins all theory and application of computer science, but also influences many other subject areas.

Computational thinking includes both core concepts, such as algorithms and variables, and core practices, such as abstraction, decomposition, data analysis, modeling, and simulation, that are vital not only to the design and development of computer programs but also to the strategic use of computational power to solve problems across disciplines. The process of creating meaningful and efficient solutions, often done in collaboration with others, typically involves these steps: defining the problem, breaking apart large problems into smaller ones, recombining existing solutions, analyzing different solutions, using data to inform new potential solutions, and looking at information in new ways to develop innovative solutions. Computational thinking plays an important role in supporting the creation of solutions to problems, both large and small. Algorithms, programs, simulations, and data are essential to all computing systems, empowering people to communicate and collaborate with others around the world. The standards promote development of foundational skills, knowledge, and experience to solve problems by creating solutions that utilize computational thinking concepts and practices.

Sub-Concepts: Modeling and Simulation, Data Analysis and Visualization, Abstraction and Decomposition, Algorithms and Programming

Concept: Networks and System Design

Computing devices typically do not operate in isolation. Networks connect computing devices to share data and resources and are an increasingly integral part of computing. Networks and communication systems provide greater connectivity in the computing world by providing fast, secure communication, and facilitating innovation. Individuals

interact with data using a variety of input and output devices that are part of a more complex computing system. The hardware and software that make up a computing system process data in digital form. A basic understanding of hardware and software is useful when troubleshooting a computing system that does not work as intended. The Networks and Systems Design standards aim to prepare students to understand the basic functioning of the computing systems and networks that are used as fundamental tools in our personal and professional lives.

Sub-Concepts: Hardware and Software, Networks and the Internet

Concept: Cybersecurity

In a digital world, all individuals have a responsibility to protect data and the computing resources they access. Cybersecurity encompasses the physical, digital, and behavioral actions that can be taken to increase this security. These measures are meant to ensure the confidentiality and integrity of data and computing resources, as well as ensure that they are accessible to the users who are supposed to have access to them. Digital security includes understanding and identifying risks, implementing appropriate safeguards, and being prepared to respond to potential attacks. The Cybersecurity standards prepare students to understand why data and computing resources need to be protected, who might access them, and why they might do so whether intentionally malicious or not. It is important that students know how to employ basic safeguards to protect data and computing resources and how to appropriately respond if a breach occurs.

Sub-Concepts: Risks, Safeguards, Response

Concept: Digital Literacy

Digital literacy is a multifaceted concept that extends beyond skills-based activities and incorporates both cognitive and technical skills. It refers to the ability to leverage computer technology to appropriately access digital information; to create, share, and modify artifacts, and to interact and collaborate with others. Digital literacy includes understanding the benefits and implications of using digital technologies to be successful in our contemporary world.

Sub-Concepts: Digital Use, Digital Citizenship

*Information gathered from

<http://www.nysed.gov/curriculum-instruction/computer-science-and-digital-fluency-learning-standards>

V.) District Technology Plan Evaluation

The District Technology Committee will review this plan annually. It will be updated as needed based upon progress towards the goals and trends in technology. The District Technology Plan will be presented to and reviewed with the Board of Education. Process of evaluation of how the use of technology has impacted student learning will consist of confidential surveys, interviews with educators including: staff, students, and administrators, and Appendix A & B to monitor achievement of goals.

New York State K-12 Computer Science and Digital Literacy Standards
Appendix A

K-12 Computer Science and Digital Fluency Standards
Impacts of Computing

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Society	<p>K-1.IC.1</p> <p>Identify and discuss how tasks are accomplished with and without computing technology.</p>	<p>2-3.IC.1</p> <p>Identify and analyze how computing technology has changed the way people live and work.</p>	<p>4-6.IC.1</p> <p>Describe computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.</p>	<p>7-8.IC.1</p> <p>Compare and contrast tradeoffs associated with computing technologies that affect individuals and society.</p>	<p>9-12.IC.1</p> <p>Evaluate the impact of computing technologies on equity, access, and influence in a global society.</p>
	<p><i>Common tasks include sending a letter by email vs. post, taking a picture with a smart phone vs. camera, buying something with an app vs. with cash at a store.</i></p>	<p><i>The focus should be on how advancements in computing technology have changed careers and lives.</i></p>	<p><i>The focus should be on how computing technologies both influence and are influenced by society and culture.</i></p>	<p><i>Topics that could be addressed include, but are not limited to, free speech, communication, and automation.</i></p>	<p><i>The focus should be on how computing technologies can both perpetuate inequalities and help to bring about equity in society.</i></p>

	K-1.IC.2 Identify and explain classroom and home rules related to computing technologies.	2-3.IC.2 Compare and explain rules related to computing technologies and digital information.	4-6.IC.2 Explain how laws impact the use of computing technologies and digital information.	7-8.IC.2 Evaluate the impact of laws or regulations on the development and use of computing technologies and digital information.	9-12.IC.2 Debate laws and regulations that impact the development and use of computing technologies and digital information.
--	---	---	---	---	--

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
	<i>Rules could include when it's okay to use a device, what programs or apps are okay to use, how to treat the equipment, etc.</i>	<i>The focus is on having students understand why rules around computing technology can change depending upon the setting.</i>	<i>The focus is on how laws regulate the use of computing technologies and what might happen if those laws did not exist.</i>	<i>The focus is on the potential consequences of laws related to computing technologies.</i>	<i>The focus is on developing and defending a claim about how a specific law related to computing technologies impacts different stakeholders.</i>
Ethics	K-1.IC.3 Identify computing technologies in the classroom, home, and community.	2-3.IC.3 Discuss and explain how computing technology can be used in society and the world.	4-6.IC.3 Explain current events that involve computing technologies.	7-8.IC.3 Identify and discuss issues of ethics surrounding computing technologies and current events.	9-12.IC.3 Debate issues of ethics related to real world computing technologies.

	<i>The focus should be on recognizing familiar computing technologies that we use in our lives.</i>	<i>The focus is on examples of computing technology that were invented to solve broader problems in society, or existing technology platforms that can have many purposes.</i>	<i>Explanations should be grade level appropriate to ensure understanding of current events and the related computing technologies.</i>	<i>At this level, students may require teacher support to discuss the possible ethical implications of computing technologies.</i>	<i>The focus is on developing and defending a claim about a specific ethical dilemma related to computing technologies.</i>
	K-1.IC.4 Identify public and private spaces in our daily lives.	2-3.IC.4 Identify public and private digital spaces.	4-6.IC.4 Explain who has access to data in different digital spaces.	7-8.IC.4 Identify and discuss issues related to the collection and use of public and private data.	9-12.IC.4 Assess personal and societal trade-offs related to computing technologies and data privacy.

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
	<i>The focus is on recognizing the difference between a public shared space versus a private space.</i>	<i>The focus is on identifying digital spaces in the context of sharing or accessing information, such as an online platform where students submit work (private) versus public websites that anyone can access.</i>	<i>The focus is on identifying different groups who might have access to data stored or posted in different places, including companies.</i>	<i>The focus is on exploring the impacts of data collection, including biases in data collection, and its use by different stakeholders for a range of purposes.</i>	<i>The focus is on discussing the personal and societal benefits and drawbacks of different types of data collection and use, in terms of ethics, policy, and culture.</i>

Ethics	This Standard begins in Grade Band 2-3	2-3.IC.5 Identify and discuss how computers are programmed to make decisions without direct human input in daily life.	4-6.IC.5 Explain how computer systems play a role in human decision making.	7-8.IC.5 Analyze potential sources of bias that could be introduced to complex computer systems and the potential impact of these biases on individuals.	9-12.IC.5 Describe ways that complex computer systems can be designed for inclusivity and to mitigate unintended consequences.
		<i>The focus is on describing computing technology that relies on a program, settings, and data to make decisions without direct human involvement.</i>	<i>The focus is on explaining a range of ways that humans interact with AI to make decisions.</i>	<i>The focus is on understanding different factors that introduce bias into an AI system and how those biases affect people.</i>	<i>The focus is on applying an understanding of bias and ethical design in order to make recommendations for designing with inclusivity and social good in mind.</i>

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Accessibility	K-1.IC.6 With teacher support, identify different ways people interact with computers and computing devices.	2-3.IC.6 Identify and discuss factors that make a computing device or software application easier or more difficult to use.	4-6.IC.6 Identify and explain ways to improve the accessibility and usability of a computing device or software application for the diverse needs and wants of users.	7-8.IC.6 Assess the accessibility of a computing device or software application in terms of user needs.	9-12.IC.6 Create accessible computational artifacts that meet standard compliance requirements or otherwise meet the needs of users with disabilities.

	<i>The focus is on the features of computers and other devices, and the things that make them easier to use (i.e. dropdown menus, buttons, areas to type).</i>	<i>The focus is on identifying choices developers make when designing computing devices and software and considering the pros and cons when making those choices.</i>	<i>The focus is on identifying the needs and wants of diverse end users and purposefully considering potential perspectives of users with different backgrounds, ability levels, points of view, and abilities.</i>	<i>The focus is on testing and discussing the usability and accessibility of various technology tools (e.g., apps, games, and devices) with teacher guidance.</i>	<i>At this level, considering accessibility becomes part of the design process and awareness of professionally accepted accessibility standards.</i>
Career Paths	K-1.IC.7 Identify multiple jobs that use computing technologies.	2-3.IC.7 Identify a diverse range of roles and skills in computer science.	4-6.IC.7 Identify a diverse range of role models in computer science.	7-8.IC.7 Explore a range of computer science related career paths.	9-12.IC.7 Investigate the use of computer science in multiple fields.
	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
	<i>The focus is on identifying jobs that utilize computing technology and how technology impacts a range of industries. Doctors, business owners, police officers, auto repair technicians, farmers, architects, and pilots use computing technology in their jobs.</i>	<i>The focus is not just on jobs in computer science, but also the skills and practices that are important for careers in the field of computer science.</i>	<i>The emphasis of this standard is the opportunity to personally identify with a range of diverse people in the field of computer science.</i>	<i>At this level, the focus is on building awareness of the many different computer science-related careers.</i>	<i>At this level, the focus is on making connections between computer science and the fields of interest of individual students.</i>

Computer Science and Digital Fluency Standards
Computational Thinking

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Modeling and Simulation	<p>K-1.CT.1</p> <p>Identify and describe one or more patterns (found in nature or designed) and examine the patterns to find similarities and make predictions.</p>	<p>2-3.CT.1</p> <p>Create a model of an object or computational process in order to identify patterns and essential elements of the object or process.</p>	<p>4-6.CT.1</p> <p>Develop a computational model of a system that shows changes in output when there are changes in inputs.</p>	<p>7-8.CT.1</p> <p>Compare the results of alternative models or simulations to determine and evaluate how the input data and assumptions change the results.</p>	<p>9-12.CT.1</p> <p>Create a simple digital model that makes predictions of outcomes.</p>
	<p><i>The emphasis is on identifying patterns and then making predictions based on the pattern.</i></p>	<p><i>The emphasis is on essential components represented in the model to achieve desired results and assist in identifying patterns in the world around us, such as cycles in nature or tessellations.</i></p>	<p><i>The emphasis is on understanding, at a conceptual level, that models or simulations can be created to respond to deliberate changes in inputs.</i></p>	<p><i>The focus is on understanding that models or simulations are limited by the data that they use, rather than understanding specifically how they use that data.</i></p>	<p><i>The focus is on using data to build alternative numerical models that can best represent a data set.</i></p>

Data Analysis and Visualization	K-1.CT.2	2-3.CT.2	4-6.CT.2	7-8.CT.2	9-12.CT.2
	Identify different kinds of data that can be collected from everyday life.	Identify and describe data collection tools from everyday life.	Collect digital data related to a real-life question or need.	Collect and use digital data in a computational artifact.	Collect and evaluate data from multiple sources for use in a computational artifact.
	<i>The emphasis is on understanding what is data and identifying different types of data, while exploring how data can be collected and sorted.</i>	<i>The emphasis is on identifying various tools in everyday life that collect, sort and store data, such as surveys, spreadsheets and charts.</i>	<i>The emphasis is on using digital tools to collect and organize multiple data points.</i>	<i>The emphasis is on designing and following collection protocols. Data sources include, but are not limited to sensors, surveys, and polls.</i>	<i>The emphasis is on designing and following collection protocols. Data sources include, but are not limited to sensors, web or database scrapers, and human input.</i>

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Data Analysis and Visualization	K-1.CT.3	2-3.CT.3	4-6.CT.3	7-8.CT.3	9-12.CT.3
	Identify ways to visualize data, and collaboratively create a visualization of data.	Present the same data in multiple visual formats in order to tell a story about the data.	Visualize a simple data set in order to highlight relationships and persuade an audience.	Refine and visualize a data set in order to persuade an audience.	Refine and visualize complex data sets to tell different stories with the same data set.
	<i>Ways to visualize data include tables, graphs, and charts.</i>	<i>The emphasis is on using the visual representation to make the data meaningful. Options for presenting data visually include tables, graphs, and charts.</i>	<i>The emphasis is on identifying and organizing relevant data to emphasize particular parts of the data in support of a claim.</i>	<i>Refining includes, but is not limited to, identifying relevant subsets of a data set, deleting unneeded data, and sorting and organizing data to highlight trends.</i>	<i>The emphasis is on refining large data sets to create multiple narratives depending upon the audience. Large data sets require use of a software tool or app to cross reference, analyze, refine, and visualize subsets of the data.</i>

Abstraction and Decomposition	K-1.CT.4	2-3.CT.4	4-6.CT.4	7-8.CT.4	9-12.CT.4
	Identify a problem or task and discuss ways to break it into multiple smaller steps.	Identify multiple ways that the same problem could be decomposed into smaller steps.	Decompose a problem into smaller named tasks, some of which can themselves be decomposed into smaller steps.	Write a program using functions or procedures whose names or other documentation convey their purpose within the larger task.	Implement a program using a combination of student-defined and third-party functions to organize the computation.
	<i>The focus is on identifying a complex (for the age group) task or problem to break apart into smaller steps. The focus should be on understanding why this process is helpful.</i>	<i>The focus is on identifying how to break apart a problem into smaller steps, while understanding that there can be multiple valid sequences of steps that solve the same problem.</i>	<i>The focus is on identifying smaller steps that solve a larger problem, recognizing that some of those steps must be broken down further until each step is manageable.</i>	<i>The focus is on identifying where there is potential to use a function or procedure to create a reusable computation.</i>	<i>The focus is on having students think about how to decompose a programming problem into functions and procedures, including working around the constraints imposed by specific functions or features provided in a library.</i>

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Abstraction and Decomposition	K-1.CT.5	2-3.CT.5	4-6.CT.5	7-8.CT.5	9-12.CT.5
	Recognize that the same task can be described at different levels of detail.	Identify the essential details needed to perform a general task in different settings or situations.	Identify and name a task within a problem that gets performed multiple times while solving that problem, but with slightly different concrete details each time.	Identify multiple similar concrete computations in a program, then create a function to generalize over them using parameters to accommodate their differences	Modify a function or procedure in a program to perform its computation in a different way over the same inputs, while preserving the result of the overall program.
	<i>Instructions to perform a task can be given with more or less detail but still achieve the same result.</i>	<i>Some details are essential to performing a task, while others are not (E.g., some may be so common that they don't need to be stated).</i>	<i>The focus is on recognizing that the same general steps are often repeated while solving a problem, even though some</i>	<i>The focus is on identifying similar expressions or sequences in code and abstracting them into functions that generalize over the similarities.</i>	<i>The focus is on understanding that the same abstract concept can be performed in different ways in a program, as long as the same inputs</i>

			<i>of the details may differ.</i>		<i>yield the same results</i>
Algorithms and Programming	K-1.CT.6 Follow an algorithm to complete a task.	2-3.CT.6 Create two or more algorithms for the same task.	4-6.CT.6 Compare two or more algorithms and discuss the advantages and disadvantages of each for a specific task.	7-8.CT.6 Design, compare and refine algorithms for a specific task or within a program.	9-12.CT.6 Demonstrate how at least two classic algorithms work, and analyze the trade-offs related to two or more algorithms for completing the same task.
	<i>The task can be a familiar, daily activity or can be designed by the teacher. Algorithms at this stage may be short, though must contain at least three steps, and should focus on sequencing.</i>	<i>The task can be a familiar activity or more abstract. The focus is on finding more than one way to reach the same goal.</i>	<i>Tasks can be unplugged or related to a computer program and reflect a task with a specific result that can be checked.</i>	<i>Algorithms can be represented in a range of formats, including flowcharts, pseudocode, or written steps. Planning the output of a program, such as with a storyboard or wireframe, is not sufficient on its own.</i>	<i>The focus of this standard is a high-level understanding that algorithms involve tradeoffs, especially related to memory use and speed. Students should understand that classic algorithms are solved problems that can be reused.</i>

Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
-------------------	-------------------	-------------------	-------------------	--------------------

Algorithms and Programming	K-1.CT.7	2-3.CT.7	4-6.CT.7	7-8.CT.7	9-12.CT.7
	Identify terms that refer to different concrete values over time.	Name/label key pieces of information in a set of instructions, noting whether each name/label refers to a fixed or changing value.	Identify pieces of information that might change as a program or process runs.	Design or remix a program that uses a variable to maintain the current value of a key piece of information.	Design or remix a program that utilizes a data structure to maintain changes to related pieces of data.
	<i>The focus is on observing that people use certain terms/labels to refer to a concept (E.g., Today's Date, Today's Weather, Word of the Week, Today's Line Leader) whose specific value can change depending on the day or time.</i>	<i>The focus is on identifying key pieces of information, labelling them with a descriptive name, and observing which labels refer to different values each time the instructions are given, and which values stay the same.</i>	<i>The focus is on identifying information that needs to be updated as a computation progresses.</i>	<i>The focus is on understanding that variables can be used to track the value of a concept in a program as it changes over time.</i>	<i>The focus is on updating the elements or components within a named instance of a data structure, without changing the value associated with the name itself.</i>
	K-1.CT.8	2-3.CT.8	4-6.CT.8	7-8.CT.8	9-12.CT.8
	Identify a task consisting of steps that are repeated, and recognize which steps are repeated.	Identify steps within a task that should only be carried out under certain precise conditions.	Develop algorithms or programs that use repetition and conditionals for creative expression or to solve a problem.	Develop or remix a program that effectively combines one or more control structures for creative expression or to solve a problem.	Develop a program that effectively uses control structures in order to create a computer program for practical intent, personal expression, or to address a societal issue.

	<i>The focus should be on short tasks where there is repetition and having students identify and describe the repetition.</i>	<i>The focus should be on recognizing that some steps in a task only get carried out some of the time, and that the conditions can be precisely described.</i>	<i>The focus is on having students work with each of conditionals and repetition (loops or iteration), but without having to use them in conjunction with one another.</i>	<i>The focus is on having students combine control structures, such as conditionals and loops, in such a way that they work together to achieve an outcome that could not be achieved using only one of them.</i>	<i>The focus is on combining different forms of repetition and conditionals, including conditionals with complex Boolean expressions.</i>
--	---	--	--	---	---

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Algorithms and Programming	K-1.CT.9 Identify and fix (debug) errors within a simple algorithm.	2-3.CT.9 Identify and debug errors within an algorithm or program that includes sequencing or repetition.	4-6.CT.9 Explain each step of an algorithm or program that includes repetition and conditionals for the purposes of debugging.	7-8.CT.9 Read and interpret code to predict the outcome of various programs that involve conditionals and repetition for the purposes of debugging.	9-12.CT.9 Systematically test and refine programs using a range of test cases, based on anticipating common errors and user behavior.
	<i>The focus should be on identifying small errors within a simple algorithm and fixing the errors collaboratively.</i>	<i>The focus should be on having students identify error(s) in an algorithm and suggest changes to fix the algorithm.</i>	<i>Debugging frequently involves stepping or tracing through a program as if you were the computer to reveal errors.</i>	<i>Programs can be debugged in numerous ways, including tracing and trying varying inputs. Perseverance is important in finding errors.</i>	<i>The emphasis is on perseverance and the ability to use different test cases on their programs and identify what issues are being tested in each case.</i>

	<p>K-1.CT.10</p> <p>Collaboratively create a plan that outlines the steps needed to complete a task.</p>	<p>2-3.CT.10</p> <p>Develop and document a plan that outlines specific steps taken to complete a project.</p>	<p>4-6.CT.10</p> <p>Describe the steps taken and choices made to design and develop a solution using an iterative design process.</p>	<p>7-8.CT.10</p> <p>Document the iterative design process of developing a computational artifact that incorporates user feedback and preferences.</p>	<p>9-12.CT.10</p> <p>Collaboratively design and develop a program or computational artifact for a specific audience and create documentation outlining implementation features to inform collaborators and users.</p>
	<p><i>The focus should be on collaboratively identifying a planning process which can be written, drawn, or spoken.</i></p>	<p><i>The focus should be on developing and documenting a plan in writing, using appropriate tools (such as a storyboard or story map).</i></p>	<p><i>An iterative design process involves defining the problem or goal, developing a solution or prototype, testing the solution or prototype, and repeating the process until the problem is solved or desired result is achieved. Describing can include speaking or writing.</i></p>	<p><i>At this level, the emphasis is on using the iterative design process to create a solution or prototype with the end user in mind and to document the steps taken by the student to gather and incorporate information about the user into the computational artifact.</i></p>	<p><i>The focus is on the collaborative aspect of software development, as well as the importance of documenting the development process such that the reasons behind various development decisions can be understood by other software developers.</i></p>

NYS K-12 Computer Science and Digital Fluency Standards
Networks and Systems Design

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Hardware and Software	<p>K-1.NSD.1</p> <p>Identify ways people provide input and get output from computing devices.</p> <p><i>The emphasis is on understanding that humans and computers interact through inputs and outputs and identifying examples in their daily lives.</i></p>	<p>2-3.NSD.1</p> <p>Describe and demonstrate several ways a computer program can receive data and instructions (input) and can present results (output).</p> <p><i>The focus is on choosing and demonstrating different computing technologies to receive and present results depending on the task.</i></p>	<p>4-6.NSD.1</p> <p>Propose improvements to the design of a computing technology based on an analysis of user interactions with that technology.</p> <p><i>The emphasis is on thinking about how the user interface could be optimized for the purpose of the computing technology and user interactions.</i></p>	<p>7-8.NSD.1</p> <p>Design a user interface for a computing technology that considers usability, accessibility, and desirability.</p> <p><i>The emphasis is on designing (but not necessarily creating) a user interface. Designs could include things like written descriptions, drawings, and/or 3D prototypes.</i></p>	<p>9-12.NSD.1</p> <p>Design a solution to a problem that utilizes embedded systems to automatically gather input from the environment.</p> <p><i>The emphasis is on designing (but not necessarily creating) solutions with embedded systems. Systems can be biological, mechanical, social, or some other type of system. Designs could include written descriptions, drawings, and/or 3D prototypes.</i></p>
	<p>K-1.NSD.2</p> <p>Identify basic hardware components that are found in computing devices.</p>	<p>2-3.NSD.2</p> <p>Explain the function of software in computing systems, using descriptive/precise language.</p>	<p>4-6.NSD.2</p> <p>Model how computer hardware and software work together as a system to accomplish tasks.</p>	<p>7-8.NSD.2</p> <p>Design a project that combines hardware and software components.</p>	<p>9-12.NSD.2</p> <p>Explain the levels of interaction existing between the application software, system software, and hardware of a</p>

	Basic hardware components are the parts that students can see, such as monitor/screen, keyboard, mouse, etc.	The focus is on understanding how software helps to complete computing tasks.	A model should only include the basic elements of a computer system, including input, output, processor, and storage.	The focus is on designing (but not necessarily creating) a system that involves collecting and exchanging data including input, output, storage, and processing.	computing system. Knowledge of specific advanced terms of computer architecture and how specific levels work is not required. Rather the progression, in general terms, from voltage to binary signal to logic gates and so on to the level of human interaction, should be explored.
--	--	---	---	--	--

NYS K-12 Computer Science and Digital Fluency Standards

Networks and Systems Design

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Hardware and Software	<p>K-1.NSD.3</p> <p>Identify basic hardware and/or software problems.</p>	<p>2-3.NSD.3</p> <p>Describe and attempt troubleshooting steps to solve a simple technology problem.</p>	<p>4-6.NSD.3</p> <p>Determine potential solutions to solve hardware and software problems using common troubleshooting strategies.</p>	<p>7-8.NSD.3</p> <p>Identify and fix problems with computing devices and their components using a systematic troubleshooting method or guide.</p>	<p>9-12.NSD.3</p> <p>Develop and communicate multi-step troubleshooting strategies others can use to identify and fix problems with computing devices and their components.</p>

	<i>The focus is on identifying the source of a common hardware/software problem (such as low battery, speakers not connected) with teacher guidance.</i>	<i>The focus is on building problem solving techniques for self-help, such as making sure speakers are turned on or headphones are plugged in or making sure that the caps lock key is not on, to narrow down a problem.</i>	<i>The focus is on trying multiple strategies to troubleshoot problems, including rebooting the device, checking for power, checking network availability, closing and reopening an application, try using a different browser, and checking settings within an application.</i>	<i>The focus is on identifying the source of a problem by using a structured process such as a checklist or flowchart to systematically try solutions that may fix the problem.</i>	<i>Some examples of multi-step troubleshooting problems include resolving connectivity problems, adjusting system configurations and settings, ensuring hardware and software compatibility, and transferring data from one device to another.</i>
Networks and the Internet	<p>K-1.NSD.4</p> <p>Identify how protocols/rules help people share information over long distances.</p> <p><i>The focus is on how information is conveyed from one individual to another and the rules that allow for communication and data sharing, such as envelopes need addresses/emails need email addresses to reach the right person.</i></p>	<p>2-3.NSD.4</p> <p>Recognize that information can be communicated using different representations that satisfy different rules.</p> <p><i>The focus is on understanding that information is converted in a special way so it can be sent through wires or waves through the air.</i></p>	<p>4-6.NSD.4</p> <p>Model how data is structured to transmit through a network.</p> <p><i>The focus is on understanding that data is broken down into smaller pieces and labeled to travel through a network and reassembled.</i></p>	<p>7-8.NSD.4</p> <p>Design a protocol for transmitting data through a multi-point network.</p> <p><i>The focus is on understanding how protocols enable communication and what additional data is necessary for transmission. Knowledge of the details of how specific protocols work is not expected.</i></p>	<p>9-12.NSD.4</p> <p>Describe the components and design characteristics that allow data and information to be moved, stored and referenced over the Internet.</p> <p><i>The focus is on understanding the design decisions that direct the coordination among systems composing the Internet that allow for scalability and reliability. Discussions should consider historical, cultural, and economic decisions related to the development of the Internet, as well as the core components of servers and routers.</i></p>

NYS K-12 Computer Science and Digital Fluency Standards
Networks and Systems Design

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Networks and the Internet	<p>K-1.NSD.5</p> <p>Identify physical devices that can store information.</p> <p><i>The focus is on recognizing that common computing devices can store information, including computers, tablets, phones, and calculators.</i></p>	<p>2-3.NSD.5</p> <p>Describe and navigate to various locations where digital information can be stored.</p> <p><i>The focus is being able to navigate and save a file to a specific location.</i></p>	<p>4-6.NSD.5</p> <p>Describe that data can be stored locally or remotely in a network.</p> <p><i>The focus is on describing that data must be stored on a physical device. Access to remotely stored data is restricted by the networks, and to access non-local data a connection to the network is required.</i></p>	<p>7-8.NSD.5</p> <p>Summarize how remote data is stored and accessed in a network.</p> <p><i>The focus is on explaining where the data associated with different apps, devices, and embedded systems is stored, how the data is synchronized, and how to connect to it.</i></p>	<p>9-12.NSD.5</p> <p>Describe how emerging technologies are impacting networks and how they are used.</p> <p><i>The focus is on discussing how specific emerging technologies impact networks in terms of scale, access, reliability, and security, and user behavior.</i></p>

Computer Science and Digital Fluency Standards

Cybersecurity

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Risks	<p>K-1.CY.1</p> <p>Identify reasons for keeping information private.</p>	<p>2-3.CY.1</p> <p>Compare reasons why an individual should keep information private or make information public.</p>	<p>4-6.CY.1</p> <p>Explain why different types of information might need to be protected.</p>	<p>7-8.CY.1</p> <p>Determine the types of personal information and digital resources that an individual may have access to</p>	<p>9-12.CY.1</p> <p>Determine the types of personal and organizational information and digital resources that an individual may have access</p>

	<i>The focus should be on discussing the reasons to keep certain information public (information you share with others) or private (information you keep to yourself or only share with your family).</i>	<i>The focus should be on potential effects, both positive and negative, for making information public.</i>	<i>The emphasis is on discussing different reasons that adversaries may want to obtain, compromise, or leverage different types of information. At this stage, students should be focused on general concepts.</i>	<i>The emphasis is on identifying personal information and devices that an individual may have access to and that adversaries may want to obtain or compromise. At this stage, students should focus on specific data and devices that they have access to.</i>	<i>The emphasis is on identifying both personal information and organizational information, and devices and embedded systems, that an individual may have access to and that adversaries may want to compromise, obtain, or leverage.</i>
Safeguards	K-1.CY.2 Identify simple ways to help keep accounts secure.	2-3.CY.2 Compare and contrast behaviors that do and do not keep information secure.	4-6.CY.2 Describe common safeguards for protecting personal information.	7-8.CY.2 Describe physical, digital, and behavioral safeguards that can be employed in different situations.	9-12.CY.2 Describe physical, digital, and behavioral safeguards that can be employed to protect the confidentiality, integrity, and accessibility of information.
	<i>The emphasis is on having a basic understanding of ways to keep accounts secure, such as having passwords/pass codes.</i>	<i>The emphasis is on recognizing and avoiding potentially harmful behaviors, such as sharing private information online or not logging off a public computer.</i>	<i>The emphasis is on describing common safeguards such as protecting devices and accounts with strong passwords, keeping software updated, and not sending sensitive information over SMS.</i>	<i>The emphasis is on recommending different types of security measures including physical, digital, and behavioral, for a given situation.</i>	<i>The emphasis is on considering the CIA Triad when recommending safeguards for a specific application or device.</i>

NYS K-12 Computer Science and Digital Fluency Standards
Cybersecurity

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Safeguards	This Standard begins in Grade Band 2-3	2-3.CY.3 Identify why someone might choose to share an account, app access, or devices.	4-6.CY.3 Describe trade-offs between allowing information to be public and keeping information private and secure.	7-8.CY.3 Describe trade-offs of implementing specific security safeguards.	9-12.CY.3 Explain specific tradeoffs when selecting and implementing security recommendations.
		<i>The focus is on explaining how user habits and behaviors should be adjusted based on who shares a device and/or application.</i>	<i>The focus is on considering the trade-offs of data sharing in different contexts.</i>	<i>The focus is on thinking about how a specific safeguard impacts the confidentiality, integrity, and access of information. Additionally, there should be a focus on discussing whether strengthening one specific safeguard adversely affects another.</i>	<i>The focus is on making security recommendations and discussing trade-offs between the degree of confidentiality, the need for data integrity, the availability of information for legitimate use, and assurance that the information provided is genuine.</i>
	K-1.CY.4 Decode a word or short message using a simple code.	2-3.CY.4 Encode and decode a short message or phrase.	4-6.CY.4 Model and explain the purpose of simple cryptographic methods.	7-8.CY.4 Describe the limitations of cryptographic methods.	9-12.CY.4 Evaluate applications of cryptographic methods.

	<p><i>The focus is on having students look at a string of symbols and giving them a key to substitute letters for the symbols to spell a word.</i></p>	<p><i>The focus is on having one student encode a word or message, and a different student, using the same key, decode it. You might encourage students to develop their own coding scheme.</i></p>	<p><i>The focus is on using ciphers to encrypt and decrypt messages as a means of safeguarding data.</i></p>	<p><i>The focus is on recognizing that cryptography provides a level of security for data, and some types of encryption are weaker than others.</i></p>	<p><i>The focus is on analyzing the role that cryptography and data security play in events that have shaped history and impact the future.</i></p>
--	--	---	--	---	---

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Response	K-1.CY.5 Identify when it is appropriate to open and/or click on links or files.	2-3.CY.5 Identify unusual activity of applications and devices that should be reported to a responsible adult.	4-6.CY.5 Explain suspicious activity of applications and devices.	7-8.CY.5 Describe actions to be taken before and after an application or device reports a security problem or performs unexpectedly.	9-12.CY.5 Recommend multiple actions to take prior and in response to various types of digital security breaches.
	<i>The emphasis is on recognizing when it is safe and appropriate for students to open links, with teacher guidance.</i>	<i>The emphasis is on recognizing situations in which students should notify a trusted adult when a device or application does not perform as expected (pop-ups, authentication and/or loading issues).</i>	<i>The emphasis is on describing simple forms of suspicious behavior in common applications and devices, including suspicious data/links, viruses and malware.</i>	<i>The emphasis is on explaining appropriate actions to prevent and address common security issues for common situations.</i>	<i>The emphasis is on analyzing different types of breaches and planning appropriate actions that might be taken to prevent and respond to a security breach.</i>

K-12 Computer Science and Digital Fluency Standards

Digital Literacy

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Digital Use	K-1.DL.1 Identify and explore the keys on a keyboard.	2-3.DL.1 Locate and use the main keys on a keyboard to enter text independently.	4-6.DL.1 Type on a keyboard while demonstrating proper	7-8.DL.1 Type on a keyboard while demonstrating proper keyboarding technique, with	9-12.DL.1 Type proficiently on a keyboard.

	<p><i>The focus is on exploring physical and/or touchscreen keyboards, and for students to be able to identify specific keys such as arrow keys, enter, space bar, backspace.</i></p>	<p><i>Students should be introduced to keyboarding and identify in second grade and begin to receive direct instruction in keyboarding in third grade, with a focus on form over speed and accuracy.</i></p>	<p>keyboarding technique.</p> <p><i>The focus is on direct instruction in keyboarding. Instruction should focus on form over speed and accuracy.</i></p>	<p>increased speed and accuracy.</p> <p><i>The emphasis is on continuing to improve keyboarding skills, with a focus on increasing speed as well as accuracy.</i></p>	<p><i>The focus is to demonstrate proficient keyboarding skills by the end of 12th grade.</i></p>
	<p>K-1.DL.2</p> <p>Communicate and work with others using digital tools.</p>	<p>2-3.DL.2</p> <p>Communicate and work with others using digital tools to share knowledge and convey ideas.</p>	<p>4-6.DL.2</p> <p>Select appropriate digital tools to communicate and collaborate while learning with others.</p>	<p>7-8.DL.2</p> <p>Communicate and collaborate with others using a variety of digital tools to create and revise a collaborative product.</p>	<p>9-12.DL.2</p> <p>Communicate and work collaboratively with others using digital tools to support individual learning and contribute to the learning of others.</p>
	<p><i>The focus should be on teaching students that people use digital tools to share ideas and work together. Communication and collaboration should be with teacher guidance.</i></p>	<p><i>The focus is on using digital tools to communicate and collaborate in order to expand knowledge and effectively convey ideas.</i></p>	<p><i>Students progress from understanding that people use digital tools to communicate and collaborate to how they use the tools. Communication and collaboration should be purposeful and, when possible and appropriate, with an authentic audience.</i></p>	<p><i>Students connect with others (students, teachers, families, the community, and/or experts) to further their learning for a specific purpose, give and receive feedback, and create a shared product.</i></p>	<p><i>Digital tools and methods should include both social and professional (those predominantly used in college and careers). Collaboration should occur in real time and asynchronously, and there should be opportunities for students to both seek and provide feedback on their thoughts and products.</i></p>

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Digital Use	<p>K-1.DL.3</p> <p>Conduct a basic search based on a provided keyword.</p>	<p>2-3.DL.3</p> <p>Conduct basic searches based on student identified keywords.</p>	<p>4-6.DL.3</p> <p>Conduct and refine advanced multi-criteria digital searches to locate content relevant to varied learning goals.</p>	<p>7-8.DL.3</p> <p>Compare types of search tools, choose a search tool for effectiveness and efficiency, and evaluate the quality of search tools based on returned results.</p>	<p><i>No Standard; Mastery reached by Grade 8</i></p>
	<p><i>The teacher will provide the keyword to help students conduct basic searches using appropriate tools.</i></p>	<p><i>Students will identify key words with which to perform an internet search using teacher-approved tool(s), to obtain information.</i></p>	<p><i>Focus should be on the quality of results a search generates, and how to improve search results based on the task or purpose by defining multiple search criteria and using filters.</i></p>	<p><i>Mastery of this standard implies an understanding of how different search tools work, why different search tools provide different results, and how and why some websites rise to the top of a search.</i></p>	
	<p>K-1.DL.4</p> <p>Use at least one digital tool to create a digital artifact.</p>	<p>2-3.DL.4</p> <p>Use a variety of digital tools and resources to create digital artifacts.</p>	<p>4-6.DL.4</p> <p>Use a variety of digital tools and resources to create and revise digital artifacts.</p>	<p>7-8.DL.4</p> <p>Select and use digital tools to create, revise, and publish digital artifacts.</p>	<p>9-12.DL.4</p> <p>Independently select advanced digital tools and resources to create, revise, and publish complex digital artifacts or collection of artifacts.</p>

	<p><i>The focus is on students using at least one digital tool to create a digital artifact, with teacher guidance.</i></p>	<p><i>Different digital tools are used for different purposes, such as communicating, collaborating, researching, and creating original content.</i></p>	<p><i>The focus is on understanding the editing process when creating digital artifacts on multiple platforms.</i></p>	<p><i>Teachers should designate a school-approved location for students to publish artifacts for an audience to view. Advanced digital tools may refer to the tool itself (i.e. the tool is more advanced) or to utilization of more advanced features on a tool.</i></p>	<p><i>Mastery of this standard implies an ability to choose and use the technology tool or resource best suited for a task or purpose.</i></p>
--	---	--	--	---	--

	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Digital Use	This Standard begins in Grade Band 4-6.	This Standard begins in Grade Band 4-6.	<p>4-6.DL.5</p> <p>Identify common features of digital technologies.</p>	<p>7-8.DL.5</p> <p>Transfer knowledge of technology in order to explore new technologies.</p>	<p>9-12.DL.5</p> <p>Transfer knowledge of technology in order to use new and emerging technologies on multiple platforms.</p>
			<p><i>Many digital technologies have similar features and functionalities. The focus is on identifying the similarities between different programs or applications, such as word processing tools on different platforms.</i></p>	<p><i>New technologies could include different tools for collaboration, creation, etc. that the student has not used before.</i></p>	<p><i>New technologies could include different tools for collaboration, creation, etc. that the student has not used before. Platforms could include devices running different operating systems or could be emerging STEAM technologies. Digitally fluent individuals can move between platforms and can use that knowledge when encountering new technology.</i></p>
Digital Citizenship	This Standard begins in Grade Band 2-3.	<p>2-3.DL.6</p> <p>Describe ways that information may be shared online.</p>	<p>4-6.DL.6</p> <p>Describe persistence of digital information and explain how actions in online spaces can have consequences.</p>	<p>7-8.DL.6</p> <p>Explain the connection between the persistence of data on the Internet, personal online identity, and personal privacy.</p>	<p>9-12.DL.6</p> <p>Actively manage digital presence and footprint to reflect an understanding of the permanence and potential consequences of actions in online spaces.</p>

		<i>The focus is on how personal information, both public and private, becomes available online and understand ways their information can be shared.</i>	<i>In order for students to be able to effectively manage their digital identities, it should be understood that online information doesn't "go away," and that information posted online can affect their real lives, even years in the future.</i>	<i>A focus should be on learning about privacy settings on social media accounts, exploring the concept of a positive online presence/identity, and identifying behaviors and information that could potentially affect them now and in the future.</i>	<i>Active management implies an understanding of how intentional and unintentional actions can affect a digital presence.</i>
	Grades K-1	Grades 2-3	Grades 4-6	Grades 7-8	Grades 9-12
Digital Citizenship	K-1.DL.7 Identify actions that promote good digital citizenship, and those that do not.	2-3.DL.7 Understand what it means to be part of a digital community and describe ways to keep it a safe, respectful space.	4-6.DL.7 Identify and describe actions in online spaces that could potentially be unsafe or harmful.	7-8.DL.7 Describe safe, appropriate, positive, and responsible online behavior and identify strategies to combat negative online behavior.	9-12.DL.7 Design and implement strategies that support safety and security of digital information, personal identity, property, and physical and mental health when operating in the digital world.

	<p><i>Students are able to identify the basic concept of being a "good digital citizen", and know what actions are and are not safe, responsible and ethical when using technologies.</i></p>	<p><i>The focus is on describing actions with students and having them discuss whether those actions would be safe, responsible, respectful, and/or ethical using technology and/or online spaces.</i></p>	<p><i>The focus is on identifying and describing potentially unsafe behaviors, and actions to take if they are witnessed or experienced, including cyberbullying.</i></p>	<p><i>Students are able to strategize ways to keep online spaces safe. Identify types of negative online behaviors including cyberbullying, harassment, trolling/flaming, excluding, outing, dissing, masquerading, and impersonation.</i></p>	<p><i>Strategies that support positive mental health in the digital world include both ways to avoid or handle cyberbullying and ways to interact positively and constructively with others in connected spaces.</i></p>
--	---	--	---	--	--

National Educational Technology Standards for Teachers Appendix B

Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning, enrich professional practice, and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators. Teachers:

Facilitate and Inspire Student Learning and Creativity.

1. Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:
 - promote, support, and model creative and innovative thinking and inventiveness;
 - engage students in exploring real-world issues and solving authentic problems using digital tools and resources;
 - promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes;
 - model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

2. Design and Develop Digital-Age Learning Experiences and Assessments. Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:
 - design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity;
 - develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress;
 - customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources;
 - provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.

Model Digital-Age Work and Learning.

3. Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

- demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations;
- collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation;
- communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats;
- model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning.

Promote and Model Digital Citizenship and Responsibility.

4. Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

- advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources;
- address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources;
- promote and model digital etiquette and responsible social interactions related to the use of technology and information;
- develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools.

Engage in Professional Growth and Leadership.

5. Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

- participate in local and global learning communities to explore creative applications of technology to improve student learning;
- exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others;
- evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning;
- contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community;

*Software and technology needs requested by teachers are reviewed regularly.

Infrastructure, Hardware, and Software Appendix C

Laptop Computers(Dell) running Windows 10 with:

- Microsoft Office
- Chrome
- Firefox
- VLC
- Internet Filtering Software
- Anti-Virus Software
- District Approved Web Based Applications Tandberg Video Conference Unit for Virtual Field Trips

Chromebook laptops running Chrome OS with:

- Chrome
- G-Suite/Google Workspace
- Internet Filtering Software
- Anti-Virus Software

Room 117 Desktop Computers running Windows 10 with:

- Microsoft Office
- Chrome
- Firefox
- Internet Filtering Software
- Anti-Virus Software
- Web based District Approved Web Based Applications

Classrooms K-12

Each Classroom has:

- Teacher Computer (Dell, WIN10)
- Viewsonic Board
- Document Camera
- Access to Network Copier/Printer
- 1:1 Student Devices

Owen D. Young Technology Budget
Appendix D

●	INSTRUCTIONAL EQUIPMENT	\$ 5,000.00
●	INSTRUCTIONAL COMPUTER HARDWARE	\$10,000.00
●	INSTRUCTIONAL COMPUTER CONTRACTUAL	\$ 3,000.00
●	INSTRUCTIONAL COMPUTER SOFTWARE	\$ 3,500.00
●	INSTRUCTIONAL COMPUTER SUPPLIES	\$ 6,500.00
		<hr/>
	TOTAL	\$28,000.00

Acceptable Use Policy

Owen D. Young Central School District (ODYCSD) makes a variety of communications and information technologies available to students and staff through computer, network, and Internet access. These technologies, when properly used, promote educational excellence in the District by facilitating resource sharing, innovation, and communication. Illegal, unethical or inappropriate use of these technologies can have dramatic consequences, harming the District, its students and its employees. This Acceptable Use policy is intended to minimize the likelihood of such harm by educating District users and setting standards, which will serve to protect the District. The District firmly believes that digital resources, information and interaction available on the computer/network/Internet far outweigh any disadvantages.

Mandatory Review

To learn proper computer/network/Internet use and conduct, students and staff are required to review these guidelines at the beginning of each school year. All District users shall be required to acknowledge receipt and understanding of all guidelines governing use of the system and shall agree to allow monitoring of their use and to comply with such guidelines. The parent or legal guardian of a student user is required to acknowledge receipt and understanding of the District's Acceptable Use policy as part of their review of the Parent and Student handbook.

This policy will be reviewed and updated as needed annually by the District Technology Committee and approved by the Board of Education in order to keep this policy current.

Digital Citizenship *

Digital citizenship can be defined as the norms of appropriate, responsible behavior with regard to technology use. All users are expected to be aware of and adhere to these elements.

1. **Digital Access:** full electronic participation in society.

Technology users need to be aware that not everyone has the same opportunities when it comes to technology. Working toward equal digital rights and supporting electronic access is the starting point of Digital Citizenship. Digital exclusion makes it difficult to grow as a society, which increasingly uses these tools. Helping to provide and expand access to technology should be the goal of all digital citizens. Users need to keep in mind that there are some that may have limited access, so other resources may need to be provided. To become productive citizens, we need to be committed to make sure that no one is denied digital access.

2. **Digital Commerce:** electronic buying and selling of goods.
Technology users need to understand that a large share of the market economy is being done electronically. Legitimate and legal exchanges are occurring, but the buyer or seller needs to be aware of the issues associated with it. The mainstream availability of Internet purchases of toys, clothing, cars, food, etc. has become commonplace to many users. At the same time, an equal amount of goods and services, which are in conflict with the laws or morals of some countries, are surfacing. (This might include activities such as illegal downloading, pornography, and gambling. Users need to learn about how to be effective consumers in a new digital economy.

3. **Digital Communication:** electronic exchange of information.
One of the significant changes within the digital revolution is a person's ability to communicate with other people. In the 19th century, forms of communication were limited. In the 21st century, communication options have exploded to offer a wide variety of choices (e.g., e-mail, cellular phones, instant messaging). The expanding digital communication options have changed everything because people are able to keep in constant communication with anyone else. Now everyone has the opportunity to communicate and collaborate with anyone from anywhere and anytime. Unfortunately, many users have not been taught how to make appropriate decisions when faced with so many different digital communication options.

4. **Digital Literacy:** process of teaching and learning about technology and the use of technology. While schools have made great progress in the area of technology infusion, much remains to be done. A renewed focus must be made on what technologies must be taught as well as how it should be used. New technologies are finding their way into the workplace that is not being used in schools (e.g., Videoconferencing, online sharing spaces such as wikis). In addition, workers in many different occupations need immediate information (just-in-time information). This process requires sophisticated searching and processing skills (i.e., information literacy). Learners must be taught how to learn in a digital society. In other words, learners must be taught to learn anything, anytime, anywhere. Business, military, and medicine are excellent examples of how technology is being used differently in the 21st century. As new technologies emerge, learners need to learn how to use that technology quickly and appropriately. Digital Citizenship involves educating people in a new way— these individuals need a high degree of information literacy skills.

5. **Digital Etiquette:** electronic standards of conduct or procedure.
Technology users often see this area as one of the most pressing problems when dealing with Digital Citizenship. We recognize inappropriate behavior when we see it, but before people use technology they do not learn digital etiquette (i.e., appropriate conduct). Many people feel uncomfortable talking to others about their digital etiquette. Often rules and regulations are created or the technology is simply banned to stop inappropriate use. It is not enough to create rules and policy, we must teach everyone to become responsible digital citizens in this new society.

6. **Digital Law:** electronic responsibility for actions and deeds
Digital law deals with the ethics of technology within a society. Unethical use manifests itself in form of theft and/or crime. Ethical use manifests itself in the form of abiding by the laws of society. Users need to understand that stealing or causing damage to other people's work, identity, or property online is a crime. There are certain rules of society that users need to be aware in an ethical society. These laws apply to anyone who works or plays online. Hacking into others information, downloading illegal music, plagiarizing, creating destructive worms, viruses or creating Trojan Horses, sending spam, or stealing anyone's identity or property is unethical.

7. **Digital Rights and Responsibilities:** those freedoms extended to everyone in a digital world.
Just as in the American Constitution where there is a Bill of Rights, there is a basic set of rights extended to every digital citizen. Digital citizens have the right to privacy, free speech, etc. Basic digital rights must be addressed, discussed, and understood in the digital world. With these rights also come responsibilities as well. Users must help define how the technology is to be used in an appropriate manner. In a digital society these two areas must work together for everyone to be productive.

8. **Digital Health and Wellness:** physical and psychological well-being in a digital technology world. Eye safety, repetitive stress syndrome, and sound ergonomic practices are issues that need to be addressed in a new technological world. Beyond the physical issues are those of the psychological issues that are becoming more prevalent such as Internet addiction. Users need to be taught that there are inherent dangers of technology. Digital Citizenship includes a culture where technology users are taught how to protect themselves through education and training.

9. **Digital Security:** electronic precautions to guarantee safety.
In any society, there are individuals who steal, deface, or disrupt other people. The same is true for the digital community. It is not enough to trust other members in the community for our own safety. In our own homes, we put locks on our doors and fire alarms in our houses to provide some level of protection. The same must be true for digital security. We need to have virus protection, backups of data, and surge control of our equipment. As responsible citizens, we must protect our information from outside forces that might cause disruption or harm.

* Ribble, Mike "Nine Themes of Digital Citizenship." Digital Citizenship: Using Technology Appropriately. GoDaddy, 2013.
<http://digitalcitizenship.net/Home_Page.html>.

Parent/Student Device, Internet Agreement Computer Permission Slip Computer Use

The Owen D. Young Central School District employs computers as one way of furthering its mission to teach the skills, knowledge, and behavior that students will need as successful and responsible adults. Students are issued an electronic device to enable them to use a varied and exciting set of resources including computer applications, multimedia, and the Internet. The following regulations refer to the student use of any and all computers within the School District:

- No person will deliberately or willfully cause damage, or alter the district-approved student-safe image on any computer equipment or software or assist others in doing the same.
- No software shall be installed on a district owned computer, unless it is approved by the district and installed by a Computer Specialist working for the district.
- At no time will a computer or device, not owned by the district be connected to the district network unless done so by and with the permission of the Network Administrator.
- Each person will respect the rights of others to the privacy of the files they store on a computer, disk or cloud based storage and not view those files without the owner's permission to view or alter these files.
- No district owned computer or device will be used for illegal or unlawful use. This includes, but is not limited to: Copyright material; threatening or obscene material; expressions of bigotry, racism, or hate; or material protected by trade secrets.

Internet Use- The Internet is available to students of Owen D. Young Central Schools as a resource to promote educational excellence and communication. The following regulations are in effect relating to use of the Internet:

- No person will deliberately access educationally inappropriate materials or show others how to do the same.
- The Internet will not be used for illegal or unlawful use. This includes items listed above.
- Vandalism, defined as any malicious attempt to harass or destroy data of another user, the Internet, or any networks that are connected to the Internet is prohibited. This includes, but is not limited to the downloading, uploading or creation of computer viruses.
- Attempts to log on to the Network as an Administrator may result in immediate and permanent cancellation of network privileges.
- Any user identified as a security risk or having a history of misuse with other computer systems may be denied access to the Internet through the School District.
- Any possible problems with Internet Security will be reported immediately to the Computer Network Administrator. No attempt to correct or demonstrate the problem should be made by the user.

- Warranties: The school District makes no warranties of any kind, whether express or implied, for the service it is providing hereunder. The School District will not be responsible for any damages you may suffer. This includes loss of data resulting from delays, non-deliveries, mis-deliveries, or service interruptions caused by its own negligence or your errors or omissions. Use of any information obtained via the Internet is at your own risk. The School District specifically denies any responsibility for the accuracy or quality of information obtained through its services.

Access and Disclosure

- A. Grounds Required for Access: The Owen D. Young Central School District reserves the right to access and disclose the contents of student, and other authorized users' communications. The District will do so only when it has a legitimate need and only with appropriate authorization. Messages sent or received may be made available for review by any authorized Owen D. Young Central School District official for purposes related to the Owen D. Young Central School District.
- B. Monitoring of electronic devices: The Owen D. Young Central School District will monitor student devices as a routine matter.
 - The Owen D. Young Central School District will inspect the contents of computers in the course of an investigation triggered by indications of misconduct, as needed to protect health, safety, and welfare, or as needed to prevent interference with the academic mission of the institution, or as needed to locate substantive information required that is not more readily available by other means. The Owen D. Young Central School District will respond to legal processes and fulfill its legal obligations.
 - The Owen D. Young Central School District will inspect computers in random checks on a periodic basis. Any detected misconduct will result in consequences for the computer user.
 - The contents of e-mail or any other communications may be disclosed without permission if such disclosure is required to satisfy a legal obligation.

User Responsibilities and Costs

There is no cost associated with the use of district electronic devices. With proper care and responsibility, each electronic device will function for many years. If an electronic device or any of its peripherals is damaged due to neglect or carelessness, the student and parent are responsible for the reasonable cost of repair or replacement. Items that are not covered under warranty will incur charges for repair or replacement. Students will be charged up to \$250 if the electronic device is lost, damaged, or vandalized.

Computer and Internet use Agreement

Permission to use the school's electronic devices is dependent upon a student and his or her parent/guardian signing the form below. Signing the form shows that the student understands and will follow the school's computer rules. Failure to follow the rules may result in a student being denied the opportunity to use the District's computers.

I understand and I will abide by the above regulations and the regulations listed in the student Handbook for Students and Parents. I (the parent or guardian) acknowledge and agree to the responsibility I have to ensure my child uses the electronic device for school related educational purposes only. I (the student and parent) further understand that any violation of the regulations above described is unethical and may also constitute a criminal offense. Should I commit a violation, my access privileges may be revoked, the school district may commence disciplinary proceedings against me, and I may be subject to appropriate legal action by the school district or others. Should the electronic device become damaged, I understand that I am responsible for the appropriate charges for repair or replacement. Further, I will hold the Owen D. Young Central School District harmless against all damages, judgments, and attorney's fees that may be obtained against them arising out of my use of the Internet.

___ I give permission for my child to participate in the Owen D. Young CSD Computer Program. In checking this, I understand my potential financial obligation.
___ I DO NOT give permission for my child to participate in the Owen D. Young CSD Computer Program.

Print Student's Name: _____ Grade: _____
Student's Signature: _____ Date: _____
Print Parents' Names: _____
Parents' Signatures: _____ Date: _____

Owen D. Young Central School Acceptable Use Policy Acknowledgement Form
This statement will acknowledge that we have read, reviewed, and understand the AUP as outlined in the student Handbook for Students and Parents. We understand that the AUP is in effect whether the electronic device is used at home or at school.

Student's Signature: _____ Date: _____
Parents' Signatures: _____ Date: _____