New York CS Standards Alignment with CodeX Curriculum

	Unit 1	Unit 2	Unit 3
Impacts of Computing			
7-8.IC.1 Compare and contrast tradeoffs associated with computing technologies that affect individuals and society.			
7-8.IC.2 Evaluate the impact of laws or regulations on the development and use of computing technologies and digital information.			
7-8.IC.3 Identify and discuss issues of ethics surrounding computing technologies and current events.			
7-8.IC.4 Identify and discuss issues related to the collection and use of public and private data.			
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.			
7-8.IC.6 Assess the accessibility of a computing device or software application in terms of user needs.			
7-8.IC.7 Explore a range of computer science-related career paths.	[1]		
Computational Thinking			
7-8.CT.1 Compare the results of alternative models or simulations to determine and evaluate how the input data and assumptions change the results.			
7-8.CT.2 Collect and use digital data in a computational artifact.		[2]	
7-8.CT.3 Refine and visualize a data set in order to persuade an audience.			
7-8.CT.4 Write a program using functions or procedures whose names or other documentation convey their purpose within the larger task.		[3]	
7-8.CT.5 Identify multiple similar concrete computations in a program, then create a function to generalize over them using parameters to accommodate their differences.			
7-8.CT.6 Design, compare, and refine algorithms for a specific task or within a program.	[4]		
7-8.CT.7 Design or remix a program that uses a variable to maintain the current value of a key piece of information.	[5]		
7-8.CT.8 Develop or remix a program that effectively combines one or more control structures for creative expression or to solve a problem.	[6]		
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.		[7]	
7-8.CT.10 Document the iterative design process of developing a computational artifact that incorporates user feedback and preferences.			
Networks & System Design			
7-8.NSD.1 Design a user interface for a computing technology that considers usability, accessibility, and desirability.			
7-8.NSD.2 Design a project that combines hardware and software components.	[8]		
7-8.NSD.3 Identify and fix problems with computing devices and their components using a systematic troubleshooting method or guide.	[9]		
7-8.NSD.4 Design a protocol for transmitting data through a multipoint network.			
7-8.NSD.5 Summarize how remote data is stored and accessed in a network.			
Cybersecurity			
7-8.CY.1 Determine the types of personal information and digital resources that an individual may have access to that need to be protected.			
7-8.CY.2 Describe tradeoffs among physical, digital, and behavioral safeguards that can be employed in different situations.			
7-8.CY.3 Describe trade-offs of implementing specific security safeguards.			
7-8.CY.4 Describe the limitations of cryptographic methods.			
7-8.CY.5 Describe actions to be taken before and after an application or device reports a security problem or performs unexpectedly.			
Digital Literacy			
7-8.DL.1 Type on a keyboard while demonstrating proper keyboarding technique, with increased speed and accuracy.			
7-8.DL.2 Communicate and collaborate with others using a variety of digital tools to create and revise a collaborative product.			
7-8.DL.3 Compare types of search tools, choose a search tool for effectiveness and efficiency, and evaluate the quality of search tools based on returned results.			
7-8.DL.4 Select and use digital tools to create, revise, and publish digital artifacts.			
7-8.DL.5 Transfer knowledge of technology in order to explore new technologies.			
7-8.DL.6 Explain the connection between the persistence of data on the internet, personal online identity, and personal privacy.			
7-8.DL.7 Describe safe, appropriate, positive, and responsible online behavior and identify strategies to combat negative online behavior.			

New York CS Standards Alignment with CodeX Curriculum	Unit 1	Unit 2	Unit 3
Impacts of Computing			
9-12.IC.1 Evaluate the impact of computing technologies on equity, access, and influence in a global society.			
9-12.IC.2 Debate laws and regulations that impact the development and use of computing technologies and digital information.			
9-12.IC.3 Debate issues of ethics related to real-world computing technologies.			
9-12.IC.4 Assess personal and societal trade-offs related to computing technologies and data privacy.			
9-12.IC.5 Describe ways that complex computer systems can be designed for inclusivity and to mitigate unintended consequences.			
9-12.IC.6 Create accessible computational artifacts that meet standard compliance requirements or otherwise meet the needs of users with disabilities.			
9-12.IC.7 Investigate the use of computer science in multiple fields.	[10]		
Computational Thinking			
9-12.CT.1 Create a simple digital model that makes predictions of outcomes.			
9-12.CT.2 Collect and evaluate data from multiple sources for use in a computational artifact.			
9-12.CT.3 Refine and visualize complex data sets to tell different stories with the same data set.			
9-12.CT.4 Implement a program using a combination of student-defined and third-party functions to organize the computation.			
9-12.CT.5 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.			
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.			
9-12.CT.7 Design or remix a program that utilizes a data structure to maintain changes to related pieces of data.			
9-12.CT.8 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.	[11]		
9-12.CT.9 Systematically test and refine programs using a range of test cases, based on anticipating common errors and user behavior.			
9-12.CT.10 Collaboratively design and develop a program or computational artifact for a specific audience and create documentation outlining implementation features to inform collaborators and users.			
Networks & System Design			
9-12.NSD.1 Design a solution to a problem that utilizes embedded systems to automatically gather input from the environment.		[12]	
9-12.NSD.2 Explain the levels of interaction existing between the application software, system software, and hardware of a computing system.			
9-12.NSD.3 Develop and communicate multistep troubleshooting strategies others can use to identify and fix problems with computing devices and their components.	[13]		
9-12.NSD.4 Describe the components and design characteristics that allow data and information to be moved, stored, and referenced over the internet.			
9-12.NSD.5 Describe how emerging technologies are impacting networks and how they are used.			
Cybersecurity			
9-12.CY.1 Determine the types of personal and organizational information and digital resources that an individual may have access to that need to be protected.			
9-12.CY.2 Describe physical, digital, and behavioral safeguards that can be employed to protect the confidentiality, integrity, and accessibility of information.			
9-12.CY.3 Explain specific trade-offs when selecting and implementing security recommendations.			
9-12.CY.4 Evaluate applications of cryptographic methods.			
9-12.CY.5 Recommend multiple actions to take prior and in response to various types of digital security breaches.			
Digital Literacy			
9-12.DL.1 Type proficiently on a keyboard.			
9-12.DL.2 Communicate and work collaboratively with others using digital tools to support individual learning and contribute to the learning of others.			
9-12.DL.3 No Standard; Mastery reached by Grade 8			
9-12.DL.4 Independently select advanced digital tools and resources to create, revise, and publish complex digital artifacts or collection of artifacts.			
9-12.DL.5 Transfer knowledge of technology in order to use new and emerging technologies on multiple platforms.			
9-12.DL.6 Actively manage digital presence and footprint to reflect an understanding of the permanence and potential consequences of actions in online spaces.			
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.			

[1] At the end of each Mission, different ways those objectives are used in the real world is shown therefore showing different careers that utilize those objectives.

[2] The sensor data collection does this
Mission 11 is the best example of this

[3] Mission 9 begins the use of student created functions

[4] This begins in Mission 6

[5] Remixes begin in Mission 4
All Missions starting with 3 use variables

[6] Remixes begin in Mission 4 and this can be accomplished depending on the rubric the teacher gives

[7] Code Tracing Charts are introduced in the teachers' manual
Debugger is introduced in Mission 3

[8] All of our Missions combine hardware and software components

[9] Mission 2 and the teachers' manual discuss troubleshooting techniques

[10] The end of each Mission discusses different fields that utilize the objectives just learned

[11] These are the remixes that are introduced in Mission 4

[12] The CodeX has sensors that gather input from the environment like the light sensor and temperature sensors. Like Mission 12

[13] Code Tracing Charts can accomplish this and they are introduced in the teachers' manual