STRATFORD PUBLIC SCHOOLS
Curriculum Map: Grades 6-8
Pacing Guide: September- November (First Quarter)
Unit 1: Computer Science and Design Thinking

Written by Jill Marakovits
Approved August 2022

Mission Statement:

-By the end of eighth grade, students will have a stronger grasp of computing systems and how they work and how they can help people in today's knowledge based technological world by providing a curriculum of high quality computer science and technological design education.

-By the end of eighth grade, students will also gain a better understanding of 21st Century skills as they apply to the technology standards and the in-depth understanding of computer science, design and creative thinking and how computers extend the abilities of humans.

- By the end of eighth grade, students will be able to utilize different technologies to ethically produce and critically consume technology and how today's technology influences economic, political, social, and cultural issues in our world today.

-By the end of eighth grade, students will have a greater understanding of engineering design which is a creative and systematic process to address local and global problems.

-By the end of eighth grade, students will gain an equitable access in computer science and design thinking education to become successful digital citizens, collaborators, innovators, and entrepreneurs to make proper changes in technology where needed both ethically and culturally.

Essential Questions:

-What is technology and how does it work and impact the lives of ourselves and others in our world today?
-What is reliable delivery of information across networks?
-How has technology changed and made our life easier and more challenging?
-How has computing devices changed individuals and their behavior?
-What is a computer made up of and how has the software and hardware changed?
-How can I make sure my computer is safely connected to the internet?
-How has society managed the trade-offs to the increasing globalization and automation that technology today brings to our lives and the world?
-What troubleshooting strategies can I use to help solve problems when the computer isn't working?
-What is a secure and unsecure browser and how do you navigate through a secure browser? (google)
-What is a keyboard and how do students utilize it to type with the correct fingers to quickly type different types of writing in the digital world? -
How can I make letters capital and highlight words that I type to have them do other functions? (ex. cut/copy and paste, change font, style and size)
- How can I save my documents to a safe drive so I can share them and collaborate with the appropriate people?
-How can I show good digital citizenship in all different settings and with a wider use of programs?
-How can I safely and responsibly connect, collaborate and communicate with other people on the computer?

-What is private and public information students can share safely in the digital world?
- How can I use Google Docs to type assignments both individually and with others?
-How can I utilize Google Slides to create a presentation both individually and with others? (creative thinking) -How can students navigate Google Classroom and Google Meet in a school safe environment?
- How can I utilize Google Sheets to graph and analyze data both individually and with others?
-How can I create a safe password? (numerals, capitals, and characters)
-What does it mean to be on a secure network as a way to have errorless communication with the world? -How can I use antivirus protection programs to allow for safe internet access?
-How can students sequence steps as it applies to coding?
-How can students design programs by following sequential steps in programming as it applies to websites or programs?
-How different algorithms work and can achieve the same result?
-How can I utilize coding websites to help me become a 21st century global-minded individual?
- How can I better my understanding of engineering design as a systematic, creative and iterative process that is used with global issues today?

Enduring Understanding

-Technology literacy, digital citizenship and information and media literacy impacts our lives and will be part of our future educational and career experiences both locally and globally.
-Collaboration about positives and negatives with technology and how technology should be monitored, maintained and improved over time.
-Individuals are affected differently by technology and will use it to extend their creative thinking in a positive educational and career way.
-Being a good digital citizen is an essential quality of being a productive and successful citizen in the 21st century and beyond.
-Safe and appropriate online communication and collaboration will be a key component of future and career choices of students.
-Utilizing digital tools such as Google Apps to communicate thoughts, research and ideas effectively both individually and collaboratively within the classroom and at home.
-Understanding how different programs work and how to choose the best program is a key concept in being a successful citizen.
-Typing will help students to successfully communicate more efficiently.
-Navigate different types of technology in the digital world to become healthy, productive, 21st century global-minded individuals.
- Participate in a diverse online community that incorporates perspectives where students can learn from different cultures, ethnicities, abilities and genders.
- Coding will help students be successful in the STEAM based careers and or jobs they may attain.
-Engagement and preparation in technology will help students to be entrepreneurs in this ever changing world of digital computing devices and tools.
-In this ever changing world, students need to understand how technology spurs new business and career opportunities for their future endeavors.

New Jersey Student Learning Standard	**Core Content Objective**		**Instructional Actions**	
	Concepts	**Skills**	**Activities/Strategies**	**Assessment**

<u>Targeted NJ Core Curriculum Content Standards</u> 8.1.8.CS.1, 8.1.8.CS.2, 8.1.8.CS.4, 8.1.8.NI.1, 8.1.8.NI.2, 8.1.8.AP.3, 8.1.8.AP.4, 8.1.8.AP.5,8.1.8.AP.8, 8.1.8.AP.9, 8.1.8.DA.1, 8.1.8.DA.2, 8.1.8.DA.3, 8.1.8.DA.4, 8.1.8.DA.5, 8.1.8.NI.3, 8.1.8.NI.4, 8.2.8.ED.1, 8.2.8.ED.2, 8.2.8.ED.3, 8.2.8.ED.4, 8.2.8.ED.5, 8.2.8.ED.6, 8.2.8.ED.7, 8.2.8.ITH.1, 8.2.8.ITH.2, 8.2.8.ITH.3, 8.2.8.ITH.4, 8.2.8.ITH.5, 8.2.8.NT.1, 8.2.8.NT.2, 8.2.8.NT.3, 8.2.8.NT.4, 8.2.8.ETW.1, 8.2.8.ETW.2, 8.2.8.ETW.3, 8.2.8.ETW.4, 8.2.8.EC.1, 8.2.8.EC.2 <u>L.A.L. standards</u> NJSLSA.R7, RF.K.1, RF.K.3 <u>21st Century Standards</u> 9.2.4.A.1, 9.2.12.C.2 21st Century Skills:	Following Directions Varied Computer Perspectives Sequencing Computer Care Keyboarding Wireless Methods Different Types of Technology (Pros and Cons) Proper Disposal of Batteries and Computer Parts Navigating New Programs Google Google Extensions Chrome Web Store Google Drive (use and safe sharing in district) Google Docs Files (PDF/Word/Docs) JPEG files Google Slides Google Sheets (climate change data and data collection and analysis) Composing and sending emails	Computer Basics -Computer Lab procedures - Acceptable Behavior on the computer (not maliciously) - Pros and Cons of computers then and now -Software and Hardware of a Computer -accessing new programs efficiently -Program Design -proper disposal of batteries and technology components -Identifying digital citizenship while utilizing computer programs and including media balance -Identifying and understanding how computer parts work and their uses (hardware and software) -Proper physical use and care of the computer -Navigate the function of a browser -learn how to clean up a browser -learn how to use an ad blocker -running updates on a device to keep it up to date -organizing and saving files both internally and externally - sending emails by using a safe google domain -sharing digital files with others in district and out of district safely - Utilize the correct typing strategies to type the letters	- Websites/Apps - Computer Games: - Typing Club - abcya.com bbc.co.uk - arcademics.com - kahoot - - prodigy YouTube - - Zoom - - Google Apps - - Google Extensions Google Classroom - Google Docs, Sheets and - - Slides - - nitrotype.com - - blockly hour of - code scratch - box island - engineering.com Google Drive - Google Extensions Google Forms - - design squad global (PBS - - kids) flipgrid - (video - - communication) - slido nearpod quizlet - socrative polleverywhere.com Padlet wordpress 3D Printing Kami- PDF and Document Markup tinkercad	**Summative:** -Teacher observations -Student responses -Watching the students' placement of their fingers on typing activities -Student completion of... typing club lessons, nitro type, and bbc lessons - Typing Club scores and WPM **Formative:** -Teacher observation of students navigating through various new and old programs -Use of Google Apps and Saving files as Google Doc or Word or a pdf -Using the paperclip icon to attach files -view downloaded pictures or google doc files/ word files or pdf files -Attaching photos/ images as jpeg files -using a browser and cleaning up the browser -Google Docs assignments - Google Slides projects -Google Sheets projects (climate change data and data analysis, graphing, equations, trends, patterns and statistics) -looking and sharing files on their Google Drive -Completion of coding games -Teacher observations of students' being good digital

				citizens -Website design -Showing internet safety - Creating a Google Form and

-safe and reliable communication through digital methods - computing technology has changed human abilities and the way people live and work - engineering design is a creative process - preparing students for jobs that require computing devices and experience with digital tools -understanding the study of human-computer interaction and how it can improve the design and function of technology and how it extends the abilities of humans -become critical, creative, iterative and systematic thinkers to solve local and global issues in our world - foster an inclusive computing and design culture for students in all cultures -becoming familiar with new programs and running tests to make sure things are safe and secure -prepare for jobs in engineering and understanding the trade-	Attaching Files to secure or district emails Ad Blockers/ Pop Up Blockers Google Domain/School Domain Access/ Restrictive Access Google Drive Running Updates Cleaning Up Browsers/Files Hard Drive Google Classroom Google Meet Zoom Digital Citizenship Computer Troubleshooting Solving Connectivity Issues Internet Safety Privacy Settings Password Safety Media Balance Social Media Safety Coding/ Program Design Design Decisions Algorithms and Data	and numerals correctly and efficiently on the QWERTY keyboard. -Utilize the spacebar, backspace, delete, and shift key. -Utilizing the font, size and style for typing in computer programs -Using Google Docs to type and produce different types of writing samples across curriculums -Saving files as Google Doc or Word or a pdf -Using the paperclip icon to attach files -view downloaded pictures or google doc files/ word files or pdf files -Attaching photos/ images as jpeg file -Review drop, drag and copy and paste techniques. -Continue to type words, sentences, and paragraphs - Using Google Apps appropriately and choosing appropriate ones in different situations -keeping information private - how to attain access to files through a secure domain or network -Using Google Sheets to create charts from data to digitally analyze changes over time (climate change) -Using the Chrome Web Store -Using the main Google Extensions (Split Tab, Google Dictionary, Flash Cards, Power		presenting the findings - continuation of design with a global farm for fidgits - success on engineering.com - Video communication samples from Flipgrid -Safe Online Discussions on Google Classroom -Appropriate responses on Google Classroom from teacher and student messages - Appropriate communication samples from Padlet discussion boards -polling projects -composing and sending emails on secure domains - attaching files to secure and district emails -using Google Drive for safe sharing in district -Connecting wireless devices -Success with air printing - completion of 3D printing projects -Creation of a private youtube channel (following appropriate safety settings) - creation and modifying of a computational artifact (can address societal issues or personal expression) -running updates on their devices -using ad blockers/ pop up blockers -discussion on antivirus and making sure their computers are up to date

offs between different design options Technology: -chromebooks -promethean board digital tools -apps -websites -wireless tools	Structures Coding Language (Binary/ Python Engineering Design Online Discussion in Responsible Ways Polling Design Solutions Blogging Researching Accurate Information Connectivity Issues Computer Ethics Technology and diversity inclusion Antivirus Protection	Thesaurus, Save to Google Drive, Save to Google Keep, Kami- PDF & Document Markup, Nimbus Screenshot & Screen Video Recorder, Ad Block for You Tube, and Emoji for Google Chrome -Using Google Extensions to help in getting ad blockers/tools -youtube privacy settings -social media safety -practice online safety -practice password safety -practice the importance of media balance -coding basics and advanced coding -coding language basics and advanced -different algorithms used for the same result -how to troubleshoot problems that arise with computers (internet and programming issues) - how to change settings when there is a problem -how to manage privacy settings -safe video communication skills -Polling and using the data -design solutions -becoming familiar with connecting bluetooth or wireless devices to computing devices -how to safely get rid of or recycle batteries, old computers -how to print by using a 3D printer		-success with air printing -creation of a private youtube channel (following appropriate settings) -blogging entries -round robin writing activity (group work) (Google Docs/ Google Drive) -research writing samples (sentences and paragraphs)

		-using antivirus programs and why they are important		

Online Resources / Technology:	Chromebooks, Smaller mice, Headphones, Promethean Board, Websites/Apps Computer Games: - Typing Club - abcya.com - bbc.co.uk - arcademics.com - kahoot - prodigy - YouTube - Zoom - Google Apps - Google Extensions - Google Classroom - Google Docs, Sheets and Slides			

	- nitrotype.com - blockly - box island - hour of code - scratch - engineering.com - Google Drive - Google Forms - design squad global (PBS kids) - flipgrid (video communication) - slido - nearpod - quizlet - socrative - polleverywhere.com - Padlet - wordpress - 3D Printing - Kami- PDF and Document Markup - tinkercad			
Primary Teacher Resources:	Chromebooks, Apps, mice, Headphones, Promethean Board			
Modifications:	*Special Education: Extra time, visuals, shortened assignments, different size mice, slower pacing, captions when needed* *504 Students: visuals, extra time, shortened assignments* *ELL Students: Visuals, google translator* *Gifted and Talented Students: Extra Websites for extra practice (extra bbc lessons and abcya typing games), faster pacing*			

STRATFORD PUBLIC SCHOOLS
Curriculum Map: Grades 3-5
Pacing Guide: November - January (Second Quarter)
Unit 2: Computer Science and Design Thinking

Essential Questions:

-What is technology and how does it work and impact the lives of ourselves and others in our world today?
-What is reliable delivery of information across networks?
-How has technology changed and made our life easier and more challenging?
-How has computing devices changed individuals and their behavior?
-What is a computer made up of and how has the software and hardware changed?
-How can I make sure my computer is safely connected to the internet?
-How has society managed the trade-offs to the increasing globalization and automation that technology today brings to our lives and the world?
-What troubleshooting strategies can I use to help solve problems when the computer isn't working? -What is a secure and unsecure browser and how do you navigate through a secure browser? (google) -How can I use antivirus protection programs to allow for safe internet access?
-What is a keyboard and how do students utilize it to type with the correct fingers to quickly type different types of writing in the digital world? -How can I make letters capital and highlight words that I type to have them do other functions? (ex. cut/copy and paste, change font, style and size) -How can I save my documents to a safe drive so I can share them and collaborate with the appropriate people?
-How can I show good digital citizenship in all different settings and with a wider use of programs?
-How can I safely and responsibly connect, collaborate and communicate with other people on the computer?
-What is private and public information students can share safely in the digital world?
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-How can I utilize Google Slides to create a presentation both individually and with others? (creative thinking) -How can students navigate Google Classroom and Google Meet in a school safe environment?
- How can I utilize Google Sheets to graph and analyze data both individually and with others?
-How can I create a safe password? (numerals, capitals, and characters)

-What does it mean to be on a secure network as a way to have errorless communication with the world? -How can students make sure that they are working on a secure site at all times for safety?
-How can students sequence steps as it applies to coding?
-How can students design programs by following sequential steps in programming as it applies to websites or programs?
-How different algorithms work and can achieve the same result?
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- How can I better my understanding of engineering design as a systematic, creative and iterative process that is used with global issues today?

Enduring Understanding

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-Being a good digital citizen is an essential quality of being a productive and successful citizen in the 21st century and beyond.
- Safe and appropriate online communication and collaboration will be a key component of future and career choices of students.
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-Engagement and preparation in technology will help students to be entrepreneurs in this ever-changing world of digital computing devices and tools.
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				-Website design -Showing internet safety -polling - Creating a Google Form and

21st Century Skills: - safe and reliable communication through digital methods - computing technology has changed human abilities and the way people live and work - engineering design is a creative process - preparing students for jobs that require computing devices and experience with digital tools -understand the study of human- computer interaction and how it can improve the design and function of technology and how it extends the abilities of humans -become critical, creative, iterative and systematic thinkers to solve local and global issues in our world - foster an inclusive computing and design culture for students in all cultures -becoming familiar with new programs and running tests to make sure things are safe and secure -prepare for jobs in engineering and	Attaching Files to secure or district emails Ad Blockers/ Pop Up Blockers Google Domain/School Domain Access/ Restrictive Access Google Drive Running Updates Cleaning Up Browsers/Files Hard Drive Google Classroom Google Meet Zoom Digital Citizenship Computer Troubleshooting Solving Connectivity Issues Internet Safety Privacy Settings Password Safety Media Balance Social Media Safety Coding/ Program Design Design Decisions Algorithms and Data	and numerals correctly and efficiently on the QWERTY keyboard. -Utilize the spacebar, backspace, delete, and shift key. -Utilizing the font, size and style for typing in computer programs -Using Google Docs to type and produce different types of writing samples across curriculums -Saving files as Google Doc or Word or a pdf -Using the paperclip icon to attach files -view downloaded pictures or google doc files/ word files or pdf files -Attaching photos/ images as jpeg files -Review drop, drag and copy and paste techniques. - Continue to type words, sentences, and paragraphs - Using Google Apps appropriately and choosing appropriate ones in different situations -keeping information private - how to attain access to files through a secure domain or network -Using Google Sheets to create charts from data to digitally analyze changes over time (climate change) -Using the Chrome Web Store -Using the main Google Extensions (Split Tab, Google Dictionary, Flash Cards, Power	- Firefox - Kami- PDF and Document Markup - tinkercad	presenting the findings - continuation of design with a global farm for fidgits - success on engineering.com - Video communication samples from Flipgrid -Safe Online Discussions on Google Classroom -Appropriate responses on Google Classroom from teacher and student messages -Appropriate communication samples from Padlet discussion boards -composing and sending emails on secure domains -attaching files to secure and district emails -using Google Drive for safe sharing in district -Connecting wireless devices -Success with air printing - completion of 3D printing projects -Creation of a private youtube channel (following appropriate safety settings) - creation and modifying of a computational artifact (can address societal issues or personal expression) -running updates on their devices -using ad blockers/ pop up blockers -discussion on antivirus and making sure their computers are up to date -success with air printing

understanding the trade-offs between different design options Technology: -chromebooks -promethean board digital tools -apps -websites -wireless tools	Structures Coding Language (Binary/ Python Engineering Design Online Discussion in Responsible Ways Connectivity Issues Computer Ethics Technology and diversity inclusion Antivirus Protection Working on Secure Sites Google Domain School Network Polling Design Solutions Blogging Researching Accurate Information	Thesaurus, Save to Google Drive, Save to Google Keep, Kami- PDF & Document Markup, Nimbus Screenshot & Screen Video Recorder, Ad Block for You Tube, and Emoji for Google Chrome - Using Google Extensions to help in getting ad blockers/tools -youtube privacy settings -social media safety -practice online safety -practice password safety -practice the importance of media balance -coding basics and advanced coding -coding language basics and advanced -different algorithms used for the same result -how to troubleshoot problems that arise with computers (internet and programming issues) - how to change settings when there is a problem -how to manage privacy settings -safe video communication skills -Polling and using the data -design solutions -becoming familiar with connecting bluetooth or wireless devices to computing devices -how to safely get rid of or recycle batteries, old computers -how to print by using a 3D printer		-creation of a private youtube channel (following appropriate settings) -blogging entries -round robin writing activity (group work) (Google Docs/ Google Drive) -research writing samples (sentences and paragraphs) -teacher observation of students being on secure sites and blocking sites that are inappropriate -control of google domain with only people who are in the school network -installation of ad blocker

		-using antivirus programs and why they are important -being on a secure site and avoiding unsecure sites -learning and using Google Domain with safety		

Online Resources / Technology:	Chromebooks, Smaller mice, Headphones, Promethean Board, Websites/Apps Computer Games: - Typing Club - abcya.com - bbc.co.uk - arcademics.com - kahoot - prodigy - YouTube - Zoom - Google Apps - Google Extensions - Google Classroom - Google Docs, Sheets and Slides			

	- nitrotype.com - blockly - box island - hour of code - scratch - engineering.com - Google Drive - Google Forms - design squad global (PBS kids) - flipgrid (video communication) - slido - nearpod - quizlet - socrative - polleverywhere.com - Padlet - wordpress - 3D Printing - Chrome - Firefox - Kami- PDF and Document Markup - tinkercad			
Primary Teacher Resources:	Chromebooks, Apps, mice, Headphones, Promethean Board			
Modifications:	*Special Education: Extra time, visuals, shortened assignments, different size mice, slower pacing, captions when needed* *504 Students: visuals, extra time, shortened assignments* *ELL Students: Visuals, google translator* *Gifted and Talented Students: Extra Websites for extra practice (extra bbc lessons and abcya typing games), faster pacing*			

STRATFORD PUBLIC SCHOOLS

Curriculum Map: Grades 3-5
Pacing Guide: February- April (Third Quarter)
Unit 3: Computer Science and Design Thinking

Essential Questions:

-What is technology and how does it work and impact the lives of ourselves and others in our world today?
-What is reliable delivery of information across networks?
-How has technology changed and made our life easier and more challenging?
-How has computing devices changed individuals and their behavior?
-What is a computer made up of and how has the software and hardware changed?
-How can I make sure my computer is safely connected to the internet?
-How has society managed the trade-offs to the increasing globalization and automation that technology today brings to our lives and the world?
-What troubleshooting strategies can I use to help solve problems when the computer isn't working? -What is a secure and unsecure browser and how do you navigate through a secure browser? (google) -How can I use antivirus protection programs to allow for safe internet access?
-What is a keyboard and how do students utilize it to type with the correct fingers to quickly type different types of writing in the digital world? -How can I make letters capital and highlight words that I type to have them do other functions? (ex. cut/copy and paste, change font, style and size) -How can I save my documents to a safe drive so I can share them and collaborate with the appropriate people?
-How can I show good digital citizenship in all different settings and with a wider use of programs?
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-How can I utilize Google Slides to create a presentation both individually and with others? (creative thinking) -How can students navigate Google Classroom and Google Meet in a school safe environment?
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-What does it mean to be on a secure network as a way to have errorless communication with the world? -How can students make sure that they are working on a secure site at all times for safety?
-How can students sequence steps as it applies to coding?
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-How different algorithms work and can achieve the same result?
-How can I utilize coding websites to help me become a 21st century global-minded individual?
- How can I better my understanding of engineering design as a systematic, creative and iterative process that is used with global issues today?

Enduring Understanding

Technology literacy and digital citizenship and information and media literacy impacts our lives and will be part of our future educational and career experiences both locally and globally.
-Collaboration about positives and negatives with technology and how technology should be monitored, maintained and improved over time.
-Individuals are affected differently by technology and will use it to extend their creative thinking in a positive educational and career way.
-Being a good digital citizen is an essential quality of being a productive and successful citizen in the 21st century and beyond.

-Safe and appropriate online communication and collaboration will be a key component of future and career choices of students.
-Utilizing digital tools such as Google Apps to communicate thoughts, research and ideas effectively both individually and collaboratively within the classroom and at home.
-Understanding how different programs work and how to choose the best program is a key concept in being a successful citizen.
-Typing will help students to successfully communicate more efficiently.
-Navigate different types of technology in the digital world to become healthy, productive, 21st century global-minded individuals.
- Participate in a diverse online community that incorporates perspectives where students can learn from different cultures, ethnicities, abilities and genders.
- Coding will help students be successful in the STEAM based careers and or jobs they may attain.
-Engagement and preparation in technology will help students to be entrepreneurs in this ever-changing world of digital computing devices and tools.
-In this ever-changing world, students need to understand how technology spurs new business and career opportunities for their future endeavors.
- Understanding the purpose of cleaning data in which they will remove errors and make it easier for their computers to process information.

New Jersey Student Learning Standard	**Core Content Objective**		**Instructional Actions**	
	Concepts	**Skills**	**Activities/Strategies**	**Assessment**

<u>Targeted NJ Core Curriculum Content Standards</u> 8.1.8.CS.1, 8.1.8.CS.2, 8.1.8.CS.4, 8.1.8.NI.1, 8.1.8.NI.2, 8.1.8.AP.3, 8.1.8.AP.4, 8.1.8.AP.5,8.1.8.AP.8, 8.1.8.AP.9, 8.1.8.DA.1, 8.1.8.DA.2, 8.1.8.DA.3, 8.1.8.DA.4, 8.1.8.DA.5, 8.1.8.DA.6, 8.1.8.NI.3, 8.1.8.NI.4, 8.2.8.ED.1, 8.2.8.ED.2, 8.2.8.ED.3, 8.2.8.ED.4, 8.2.8.ED.5, 8.2.8.ED.6, 8.2.8.ED.7, 8.2.8.ITH.1, 8.2.8.ITH.2, 8.2.8.ITH.3, 8.2.8.ITH.4, 8.2.8.ITH.5, 8.2.8.NT.1, 8.2.8.NT.2, 8.2.8.NT.3, 8.2.8.NT.4, 8.2.8.ETW.1, 8.2.8.ETW.2,	Following Directions Varied Computer Perspectives Sequencing Computer Care Keyboarding Wireless Methods Different Types of Technology (Pros and Cons) Proper Disposal of Batteries and Computer Parts Navigating New Programs Google Google Extensions Chrome Web Store	Computer Basics -Computer Lab procedures - Acceptable Behavior on the computer (not maliciously) - Pros and Cons of computers then and now -Software and Hardware of a Computer -accessing new programs efficiently -Program Design -proper disposal of batteries and technology components -Identifying digital citizenship while utilizing computer programs and including media balance -Identifying and understanding how computer parts work and their uses (hardware and software) -Proper physical use and care of the computer -Navigate the function of a	- Websites/Apps - Computer Games: - Typing Club - abcya.com - bbc.co.uk - arcademics.com - kahoot - prodigy - YouTube - Zoom - Google Apps - Google Extensions - Google Classroom - Google Docs, Sheets and Slides - Excel Sheets - nitrotype.com - blockly - hour of code - scratch - box island - engineering.com - Google Drive - Google Domain	**Summative:** -Teacher observations -Student responses -Watching the students' placement of their fingers on typing activities -Student completion of... typing club lessons, nitro type, and bbc lessons - Typing Club scores and WPM **Formative:** -Teacher observation of students navigating through various new and old programs -Use of Google Apps and Google Extension -using a browser and cleaning up the browser -Google Docs assignments - Using the paperclip icon to attach files -view downloaded pictures or google doc files/ word files or pdf files -Attaching photos/ images as jpeg file

8.2.8.ETW.3, 8.2.8.ETW.4, 8.2.8.EC.1, 8.2.8.EC.2 <u>L.A.L. standards</u> NJSLSA.R7, RF.K.1, RF.K.3 <u>21st Century Standards</u> 9.2.4.A.1, 9.2.12.C.2 21st Century Skills: - safe and reliable communication through digital methods - computing technology has changed human abilities and the way people live and work - engineering design is a creative process - preparing students for jobs that require computing devices and experience with digital tools -understanding the study of human-computer interaction and how it can improve the design and function of technology and how it extends the abilities of humans -become critical, creative, iterative and	Google Drive (use and safe sharing in district) Google Docs Files (PDF/Word/Docs) JPEG files Google Slides Google Sheets (climate change data and data collection and analysis) Excel Sheets Computational tools Composing and sending emails Attaching Files to secure or district emails Ad Blockers/ Pop Up Blockers Google Domain/School Domain Access/ Restrictive Access Google Drive Running Updates Cleaning Up Browsers/Files Hard Drive Google Classroom Google Meet	browser -learn how to clean up a browser -learn how to use an ad blocker -running updates on a device to keep it up to date -organizing and saving files both internally and externally - sending emails by using a safe google domain -sharing digital files with others in district and out of district safely - Utilize the correct typing strategies to type the letters and numerals correctly and efficiently on the QWERTY keyboard. -Utilize the spacebar, backspace, delete, and shift key. -Utilizing the font, size and style for typing in computer programs -Using Google Docs to type and produce different types of writing samples across curriculums -Saving files as Google Doc or Word or a pdf -Using the paperclip icon to attach files -view downloaded pictures or google doc files/ word files or pdf files -Attaching photos/ images as jpeg file -Review drop, drag and copy and paste techniques. - Continue to type words, sentences, and paragraphs	- Google Extensions Google Forms - design squad global (PBS kids) flipgrid (video communication) - slido nearpod - quizlet - socrative - polleverywhere.com - Padlet wordpress - 3D Printing - Chrome Firefox Kami- PDF and Document Markup tinkercad	- Google Slides projects -Google Sheets projects (climate change data and data analysis, graphing, equations, trends, patterns and statistics) -looking and sharing files on their Google Drive -Completion of coding games -Teacher observations of students' being good digital citizens -Website design -Showing internet safety -polling - Creating a Google Form and presenting the findings - continuation of design with a global farm for fidgits - success on engineering.com - Video communication samples from Flipgrid -Safe Online Discussions on Google Classroom -Appropriate responses on Google Classroom from teacher and student messages -Appropriate communication samples from Padlet discussion boards - composing and sending emails on secure domains - attaching files to secure and district emails -using Google Drive for safe sharing in district -Connecting wireless devices -Success with air printing - completion of 3D printing projects

systematic thinkers to solve local and global issues in our world - foster an inclusive computing and design culture for students in all cultures -becoming familiar with new programs and running tests to make sure things are safe and secure -prepare for jobs in engineering and understanding the trade-offs between different design options Technology: -chromebooks - promethean board digital tools -apps -websites -wireless tools	Zoom Digital Citizenship Computer Troubleshooting Solving Connectivity Issues Internet Safety Privacy Settings Password Safety Media Balance Social Media Safety Coding/ Program Design Design Decisions Algorithms and Data Structures Coding Language (Binary/ Python Engineering Design Online Discussion in Responsible Ways Connectivity Issues Computer Ethics Technology and diversity inclusion Antivirus Protection Working on Secure Sites Google Domain	-Using Google Apps appropriately and choosing appropriate ones in different situations -keeping information private - how to attain access to files through a secure domain or network -Using Google Sheets to create charts from data to digitally analyze changes over time (climate change) -Using the Chrome Web Store -Using the main Google Extensions (Split Tab, Google Dictionary, Flash Cards, Power Thesaurus, Save to Google Drive, Save to Google Keep, Kami- PDF & Document Markup, Nimbus Screenshot & Screen Video Recorder, Ad Block for You Tube, and Emoji for Google Chrome - Using Google Extensions to help in getting ad blockers/tools -youtube privacy settings -social media safety -practice online safety -practice password safety - practice the importance of media balance -coding basics and advanced coding -coding language basics and advanced -different algorithms used for the same result -how to troubleshoot problems that arise with computers (internet and programming issues) - how to change settings when		-Creation of a private youtube channel (following appropriate safety settings) - creation and modifying of a computational artifact (can address societal issues or personal expression) -running updates on their devices -using ad blockers/ pop up blockers -discussion on antivirus and making sure their computers are up to date -success with air printing - creation of a private youtube channel (following appropriate settings) -blogging entries -round robin writing activity (group work) (Google Docs/ Google Drive) -research writing samples (sentences and paragraphs) - teacher observation of students being on secure sites and blocking sites that are inappropriate -control of google domain with only people who are in the school network -installation of ad blocker -collection of data and completion of charts to understand growth and ranges of specific things

	School Network Finding source to computer problems Malware/Virus Security measures that address the threat to digital data Polling Design Solutions Blogging Researching Accurate Information	there is a problem -how to manage privacy settings -safe video communication skills -Polling and using the data -design solutions -becoming familiar with connecting bluetooth or wireless devices to computing devices -how to safely get rid of or recycle batteries, old computers -how to print by using a 3D printer -using antivirus programs and why they are important -being on a secure site and avoiding unsecure sites -learning and using Google Domain with safety -learning more in depth about the cause of computer malware/viruses -learning security measures and preventing threats to digital data -use computational tools to organize and transform data and make it usable for a specific purpose -collect data and create a chart with picture of growths and ranges and make refinements -using algorithms that are readable and easier to follow, test and debug		

Online Resources / Technology:	Chromebooks, Smaller mice, Headphones, Promethean Board, Websites/Apps			

	Computer Games: - Typing Club - abcya.com - bbc.co.uk - arcademics.com - kahoot - prodigy - YouTube - Zoom - Google Apps - Google Extensions - Google Classroom - Google Docs, Sheets and Slides - nitrotype.com - blockly - hour of code - scratch - box island - engineering.com - Google Drive - Google Forms - design squad global (PBS kids) - flipgrid (video communication) - slido - nearpod - quizlet - socrative - polleverywhere.com - Padlet - wordpress - 3D Printing - Chrome - Firefox			

	- Kami- PDF and Document Markup - tinkercad			

Primary Teacher Resources:	Chromebooks, Apps, mice, Headphones, Promethean Board			
Modifications:	*Special Education: Extra time, visuals, shortened assignments, different size mice, slower pacing, captions when needed* *504 Students: visuals, extra time, shortened assignments* *ELL Students: Visuals, google translator* *Gifted and Talented Students: Extra Websites for extra practice (extra bbc lessons and abcya typing games), faster pacing*			

STRATFORD PUBLIC SCHOOLS
Curriculum Map: Grades 3-5

Pacing Guide: April-June (Fourth Quarter)
Unit 4: Computer Science and Design Thinking

Essential Questions:

-What is technology and how does it work and impact the lives of ourselves and others in our world today?
-What is reliable delivery of information across networks?
-How has technology changed and made our life easier and more challenging?
-How has computing devices changed individuals and their behavior?
-What is a computer made up of and how has the software and hardware changed?
-How can I make sure my computer is safely connected to the internet?
-How has society managed the trade-offs to the increasing globalization and automation that technology today brings to our lives and the world?
-What troubleshooting strategies can I use to help solve problems when the computer isn't working? -What is a secure and unsecure browser and how do you navigate through a secure browser? (google) -How can I use antivirus protection programs to allow for safe internet access?
-What is a keyboard and how do students utilize it to type with the correct fingers to quickly type different types of writing in the digital world? -How can I make letters capital and highlight words that I type to have them do other functions? (ex. cut/copy and paste, change font, style and size) -How can I save my documents to a safe drive so I can share them and collaborate with the appropriate people?
-How can I show good digital citizenship in all different settings and with a wider use of programs?
-How can I safely and responsibly connect, collaborate and communicate with other people on the computer?
-What is private and public information students can share safely in the digital world?
- How can I use Google Docs to type assignments both individually and with others?
-How can I utilize Google Slides to create a presentation both individually and with others? (creative thinking) -How can students navigate Google Classroom and Google Meet in a school safe environment?
- How can I utilize Google Sheets to graph and analyze data both individually and with others?
-How can I create a safe password? (numerals, capitals, and characters)
-What does it mean to be on a secure network as a way to have errorless communication with the world? -How can students make sure that they are working on a secure site at all times for safety?
-How can students sequence steps as it applies to coding?
-How can students design programs by following sequential steps in programming as it applies to websites or programs?
-How different algorithms work and can achieve the same result?
-How can I utilize coding websites to help me become a 21st century global-minded individual?
-How can I better my understanding of engineering design as a systematic, creative and iterative process that is used with global issues today?

Enduring Understanding

-Technology literacy and digital citizenship and information and media literacy impacts our lives and will be part of our future educational and career experiences both locally and globally.
-Collaboration about positives and negatives with technology and how technology should be monitored, maintained and improved over time.
-Individuals are affected differently by technology and will use it to extend their creative thinking in a positive educational and career way.
-Being a good digital citizen is an essential quality of being a productive and successful citizen in the 21st century and beyond.
- Safe and appropriate online communication and collaboration will be a key component of future and career choices of students.

-Utilizing digital tools such as Google Apps to communicate thoughts, research and ideas effectively both individually and collaboratively within the classroom and at home.
-Understanding how different programs work and how to choose the best program is a key concept in being a successful citizen.
-Typing will help students to successfully communicate more efficiently.
-Navigate different types of technology in the digital world to become healthy, productive, 21st century global-minded individuals.
- Participate in a diverse online community that incorporates perspectives where students can learn from different cultures, ethnicities, abilities and genders.
- Coding will help students be successful in the STEAM based careers and or jobs they may attain.
-Engagement and preparation in technology will help students to be entrepreneurs in this ever-changing world of digital computing devices and tools.
-In this ever-changing world, students need to understand how technology spurs new business and career opportunities for their future endeavors. -Understanding the purpose of cleaning data in which they will remove errors and make it easier for their computers to process information.
-Understanding and making adaptations to trade-offs that computers have created as it affects people's everyday activities and career choices such as remote work opportunities that have been more prevalent in our world.
-Understanding the trade-offs with the need for more time on social media for career, social and educational needs.

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of technology and how it extends the abilities of humans -become critical, creative, iterative and systematic thinkers to solve local and global issues in our world - foster an inclusive computing and design culture for students in all cultures -becoming familiar with new programs and running tests to make sure things are safe and secure -prepare for jobs in, IT, and software engineering and understanding the trade-offs between different design options - troubleshooting computer programs will help in errorless technology interaction and success in school and the real world - prepare for jobs in engineering and understanding the trade-offs between different design options Technology: -chromebooks -promethean board	Google Meet Zoom Digital Citizenship Computer Troubleshooting Solving Connectivity Issues Internet Safety Privacy Settings Password Safety Media Balance Social Media Safety Coding/ Program Design Design Decisions Algorithms and Data Structures Coding Language (Binary/ Python Engineering Design Online Discussion in Responsible Ways Connectivity Issues Computer Ethics Technology and diversity inclusion Antivirus Protection Working on Secure Sites	-Continue to type words, sentences, and paragraphs - Using Google Apps appropriately and choosing appropriate ones in different situations -keeping information private - how to attain access to files through a secure domain or network -Using Google Sheets to create charts from data to digitally analyze changes over time (climate change) -Using the Chrome Web Store -Using the main Google Extensions (Split Tab, Google Dictionary, Flash Cards, Power Thesaurus, Save to Google Drive, Save to Google Keep, Kami- PDF & Document Markup, Nimbus Screenshot & Screen Video Recorder, Ad Block for You Tube, and Emoji for Google Chrome - Using Google Extensions to help in getting ad blockers/tools -youtube privacy settings -social media safety -practice online safety -practice password safety - practice the importance of media balance -coding basics and advanced coding -coding language basics and advanced -different algorithms used for the same result -how to troubleshoot problems that arise with computers (internet and programming		-completion of 3D printing projects -Creation of a private youtube channel (following appropriate safety settings) - creation and modifying of a computational artifact (can address societal issues or personal expression) -running updates on their devices -using ad blockers/ pop up blockers -discussion on antivirus and making sure their computers are up to date -success with air printing - creation of a private youtube channel (following appropriate settings) -blogging entries -round robin writing activity (group work) (Google Docs/ Google Drive) -research writing samples (sentences and paragraphs) - teacher observation of students being on secure sites and blocking sites that are inappropriate -control of google domain with only people who are in the school network -installation of ad blocker -collection of data and completion of charts to understand growth and ranges of specific things -teacher led discussion on

digital tools - apps -websites -wireless tools	Google Domain School Network Finding source to computer problems malware/virus security measures that address the threat to digital data pseudocode Internet Infrastructures HotSpots Information Tech Software Engineer Computer Help Desks Polling Design Solutions Blogging Researching Accurate Information Bias Resolution/ Clarity/ Quality of device Barriers in Technology Education within the school and world	issues) - how to change settings when there is a problem -how to manage privacy settings -safe video communication skills -Polling and using the data -design solutions -becoming familiar with connecting bluetooth or wireless devices to computing devices -how to safely get rid of or recycle batteries, old computers -how to print by using a 3D printer -using antivirus programs and why they are important -being on a secure site and avoiding unsecure sites -learning and using Google Domain with safety -learning more in depth about the cause of computer malware/viruses -learning security measures and preventing threats to digital data -use computational tools to organize and transform data and make it usable for a specific purpose -collect data and create a chart with picture of growths and ranges and make refinements -how to write pseudocode -computer programming and how it can lead to jobs in information technology and/or software engineering -how to communicate with a		how tech has influenced society over time -discussion on how technology has evolved and how we are in need of more internet infrastructures, hot spots and internet landlines -success of students interacting with help desks online -discussions on career-based jobs with the presence of more technology such as software engineer, stem related occupations or information technology/ IT jobs -identifying the bias and barriers that exists with the technology we use on a daily basis in the classroom and what we will use in the future -success with reading code and following it, testing it and debugging it -students list solutions to help students who have barriers with technology -students being able to change their resolution on their computer or listing better technology to use in different situations

		help desk and the various ways they can ask for help in the digital world -getting a virtual ticket for help -issues with bias and accessibility in the design of technology that we use -using algorithms that are readable and easier to follow, test and debug -how technology can have consequences or barriers for lower income families -changing the resolution on their screen or what devices have better resolution settings		

Online Resources / Technology:	Chromebooks, Smaller mice, Headphones, Promethean Board, Websites/Apps Computer Games: - Typing Club - abcya.com - bbc.co.uk - arcademics.com - kahoot - prodigy - YouTube - Zoom - Google Apps - Google Extensions - Google Classroom - Google Docs, Sheets and Slides - nitrotype.com - blockly - hour of code
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