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NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Computer Literacy

June 2018

BOE Approved September 2018

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Authors of Course Guide

Shana Bergonzelli and Kristie O'Neill

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

This introductory course will involve students in understanding computers and their role in the modern world. Topics covered in this course include: network basics/file management, word processing/output, keyboarding, computer terminology, hardware and software. This course will incorporate 21st Century Skills as well as ISTE and CCSS standards to engage students in electronic communication, creativity and collaboration.

Major Units and Pacing Guides

Unit 1 - Software Applications - Google Suite	Pacing 4 weeks or 10-11 block classes
Unit 2 - Computer Literacy - Today's technology, ethics and security	Pacing 3 weeks or 7-8 block classes
Unit 3 - Digital Correspondence and Word Processing	Pacing 2 weeks or 5-6 block classes
Unit 4 - Computer Architecture, device basics	Pacing 3 weeks or 7-8 block classes
Unit 5 - Introduction to Programming	Pacing 3 weeks or 7-8 block classes
Unit 6 - Introduction to Web Design	Pacing 3 weeks or 7-8 block classes

Stage 1 Desired Results

ESTABLISHED GOALS

ISTE 3.a - Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

ISTE 6.a - Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

ISTE 6.b - Students create original works or responsibly repurpose or remix digital resources into new creations.

ISTE 7.c - Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

CCSS.ELA-LITERACY.W.9-10.2.A-Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

CCSS.ELA-LITERACY.W.9-10.6 - Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Transfer

Students will be able to independently use their learning to…

Collaborate safely and productively online with teachers, classmates and colleagues

Utilize the components of Google Suite to work, share and organize a variety of types of documents

Convert multiple Microsoft Office documents to Google formats and vice versa

Create and present effective presentations using Google Slides

Display numerical data in a variety of ways to enhance user understanding using Google Sheets

Understand Google Classroom and how to create, copy, edit, share and submit work successfully with peers and educators.

Demonstrate the proper techniques necessary for the operation of the keyboard.

Meaning

UNDERSTANDINGS *Students will understand that…*	ESSENTIAL QUESTIONS
Google Suite can be used in a variety of ways and serve different purposes for our educational and business needs.	What are some critical skills needed for success in the 21st century?
Google Drive is used for the storage of files including non-Google formats such as Microsoft Office.	How can the use of electronic resources increase productivity in school and the workplace?
Google Docs, Sheets, and Slides are online programs that function similar to Microsoft Office but have specific individual purposes.	How can Google Suite gain broader appeal to large businesses?
	Will Google Suite ever replace Microsoft Office as the main productivity application?

	Google Classroom will utilize all of these programs in a variety of ways to enhance our educational experience. While Google Suite is often used in education it is not always the optimal choice for businesses. Knowing the correct posture and hand positioning when keyboarding can improve our productivity level.	
	Acquisition	
	Students will know…	*Students will be skilled at…*
	Google Drive is your personal file depository that allows you to store your documents, photos, videos, and more online.	Naming,organizing, sharing and accessing files in Google Drive.
	Within your Google Drive you have access to many of your Google apps like Google Docs, Google Sheets, and Google Slides to create and edit various types of files.	Creating, editing, sharing and submitting documents using Google Docs, Google Sheets and Google Slides.
	Google Apps is a suite of Google applications that brings together essential productivity tools to support education.	Combining work in Google Docs, Sheets and Slides to create a powerful presentation to accomplish a goal.
	Google Classroom is a useful tool for educators and students to assign, share, edit and submit work from anywhere.	Downloading assignments from Google Classroom, editing, saving, sharing and submitting work back into Google Classroom for teacher review.
	Identification of keys on a keyboard - home row and finger usage.	Keystroking with speed and accuracy

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A,M,T	Teacher Rubric	PERFORMANCE TASK(S): GOAL - Students will be assigned the role of admissions officer at a college or university. They must create a professional Google Slides presentation to show to future students. The slides will contain links to a flyer in Google Docs as well as a link to spreadsheets using Google Sheets. Students will present all work to the class. ROLE - Admissions Officer AUDIENCE - High School students from around the country SITUATION - Help! Enrollment is low at your college or university and the admissions team needs to increase the number of high school students applying this year. The administration has asked you to create a google presentation to show at high schools around the country that gives detailed information about your school. It is important that your Slides contain pictures and information that best showcase all your school has to offer. You will also want to show some statistics from the school including enrollment, degrees offered, and costs. These should be displayed in both table and graph formats. Finally, the schools have asked for a flyer to be created to hang on the walls of the high schools to increase interest. PERFORMANCE - Students will utilize their knowledge of Google Classroom, Google Drive and Google Suite to complete this assignment. The project and all associated files will be assigned on Google Classroom. Students will download, edit, share and submit all work back to Google Classroom. Folders will be created and organized within Google Drive to store all associated files. STANDARD - A professional google slide presentation with interesting facts, attractive images and working links to other documents. Informative and real data organized and displayed in both table and graph format on Google Sheets. Attractive and informative Flyer created in Google Docs. All documents contain required elements per assignment.

		OTHER EVIDENCE:
A, T	Teacher checklist	Student Notes
A, T	Teacher checklist	Small group and large group discussions
A, T	Teacher observation	Summative assessments
A, T, M	Teacher checklist	Google Sheet activities and assignments
		Google Slides activities and assignments
		Google Docs activities and assignments

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	Pre-assessment assignments will be given for working around Google Drive, as well as Google Slides and Google Sheets. Pre-assessment using the google docs scavenger hunt activity Keyboarding pre-assessment	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T	Students will be introduced to the keyboard and proper keystroking using the touch method.	Teacher evaluates student responses
T, A	Students will begin their self driven online keyboarding program to complete at their own pace throughout the semester.	Monitoring and evaluating student progress on online exercises.
T, A	Students will complete both accuracy and speed tests throughout the semester	Teacher assessments
T	Teacher will provide an introduction and classroom instruction regarding various terms and definitions associated with Google Suite	Oral response and classroom notes
T	Teacher will utilize a brief slideshow or webpage to introduce fundamental information and serve as a springboard for initiation and interactive activities.	Teacher evaluation and monitoring
T,M , A	Various hands on activities and self guided videos will occur throughout. Below are a few examples. Various online tutorials and help including the following website: https://gsuite.google.com/training/ https://www.youtube.com/watch?v=QTgvX5MLPC8 Google Suite or Microsoft? Video https://www.youtube.com/watch?v=ZvW7crGXIRE https://www.youtube.com/watch?v=bqFioqQogS4	Teacher evaluation Oral response and classroom discussion Teacher evaluates student work

	Various in class assignments building on knowledge learned in Google Suite.	

Unit 2 - Computer Literacy - Today's Technology, Ethics and Security Pacing Guide: 3 weeks or 7-8 block classes

Stage 1 Desired Results

ESTABLISHED GOALS

ISTE 1.c - use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

ISTE 2.a - cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

ISTE 2.b - engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

ISTE 2.c - demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

ISTE 2.d - manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their

Transfer

Students will be able to independently use their learning to…

Differentiate technology used by home users, office users, and mobile users

Conduct themselves in ethical and appropriate ways online in order to maintain a positive reputation.

Realize the importance of digital security both on the job and in their personal lives.

Identify ways they may get scammed or be vulnerable online.

Further explore how technology is used in various fields

Meaning

UNDERSTANDINGS *Students will understand that…*	ESSENTIAL QUESTIONS
Digital literacy involves having a current knowledge and understanding of computers, mobile devices, the web, and related technologies.	Through the course of your daily life, in what ways will you need to utilize all of the different technologies?

navigation online **CCSS.ELA-LITERACY.W.9-10.7-** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	Behaving unethically in our personal or professional worlds can have permanent consequences. Negative experiences have resulted when people post online - both personally and professionally. There are many digital security risks for both individuals and businesses Technology is utilized in a variety of ways in most career fields	How can the decisions you make on your personal media affect you in the future? What lessons can be learned from real people who have suffered the effects of bad decisions regarding social media? Why is it important that businesses spend money on digital security? How is technology used in a career field you may be interested in?
	Acquisition	
	Students will know… How to differentiate between various current technologies and their uses. Different types of internet and network attacks The negative effects of making poor ethical choices on a personal and professional level The importance of security within a business How technologys is used in various career fields.	*Students will be skilled at…* Identifying technologies and their appropriate uses. Identifying ways their personal data can be at risk and ways to avoid being exposed. Understanding how their personal information can be at risk through businesses. Examining various fields of interest and understanding how technology is utilized in each

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T,M,A	New Milford High School school wide presentation rubric Teacher Rubric for Google Slide Project	PERFORMANCE TASK(S): GOAL - Students will complete a case study on a real corporation like Facebook. They will research and evaluate if the company has been successful in various forms of ethical responsibility and security. ROLE - Human Resources Employee AUDIENCE - Human Resources Manager SITUATION - You have been hired as a human resources employee at a large and profitable company. Your manager is concerned with all of the news stories lately about companies behaving unethically and customer's information being compromised. She wants you to conduct a thorough investigation and report your findings back to her. PERFORMANCE - Your report should be well researched and comprehensive. You must include specific examples to support your conclusion if the company is ethical and secure or not. Your final report will be in the form of a google slide presentation. If your company is found to not be in compliance, a suggestion of future course of action is required. STANDARD - A professional google slide presentation with clear, factual points that are well defined. Each slide should also contain a clear image to enhance the audience's understanding of the information.

	Teacher observation	OTHER EVIDENCE: Student Notes Small group and large group discussions Summative assessments

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Pre-assessment will be in the form of an activity whereby students collaborate in small groups to identify and discuss types of technology used today as well as the importance of ethics and digital security.	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T	Teacher will provide an introduction and classroom instruction regarding various terms and definitions of types of technologies utilized today	Teacher evaluates student responses
T	Teacher will utilize a brief slideshow or webpage to introduce fundamental information and serve as a springboard for initiation and interactive activities.	
T,M,A	Various hands on activities and self guided videos will occur throughout. Below are a few examples. Cyber Security Lab -www.pbs.org - Take cybersecurity into your own hands. In this Lab, you'll defend a company that is the target of increasingly sophisticated cyber attacks. Your task is to strengthen your cyber defenses and thwart the attackers by completing a series of cybersecurity challenges. You'll crack passwords, craft code, and defeat malicious hackers.	Monitoring and evaluating student progress on online exercises.

M	Cybersecurity Videos www.pbs.org "cybersecurity 101" "Cyber Codes", "The Secret Lives of Hackers", " A Cyber Privacy Parable", "Meet the Experts"	Teacher evaluates student response to video questions
M	Various online articles and resources related to ethics and reputation will be provided https://www.indystar.com/story/sports/college/indiana/2015/02/26/college-athletes-continue-face-social-media-perils/24054307/	Teacher evaluates student response to thought provoking article questions
T,M,A	Students will complete a research assignment on how ethics has affected a real world person or business. For example "An offensive tweet from Donte DiVincenzo's account in 2011 surfaces" and "Home Depot offers $19M to settle customers' hacking lawsuit"	Teacher and Peer evaluation
T,M	Teacher will provide a lesson exploring various career fields and how technology is incorporated in each.	

Unit 3 - Digital Correspondence and Word Processing Pacing Guide: 3 weeks or 7-8 block classes

Stage 1 Desired Results

ESTABLISHED GOALS

ISTE 1.a - articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

ISTE 1.b - build networks and customize their learning environments in ways that support the learning process

ISTE 2.a - cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

Transfer

Students will be able to independently use their learning to…

Correspond/Communicate appropriately in a business environment

Demonstrate their knowledge of word processing - saving, editing, sharing, and manipulating documents using google docs.

Produce and edit professional quality business letters and resumes

Meaning

UNDERSTANDINGS *Students will understand that…*	ESSENTIAL QUESTIONS

ISTE 2.b - engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices. **ISTE 6.d** - publish or present content that customizes the message and medium for their intended audiences. **CCSS ELA-LITERACY W.9-10.5 -** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. **CCSS ELA-LITERACY W.9-10.2.E** - Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	Success in business and in life is impacted for better or worse by the way in which we communicate. Understanding the correct way to manipulate and save and share documents in google docs will help throughout high school and beyond. Creating an effective business letter and resume can help achieve a goal, such as getting into college or getting a job.	How do you determine the most effective form of business and personal communication? How will you be able to use word processing in both your near and distant futures? How can you begin now to prepare for your future in order to accomplish your goals? Why is it important to know how to communicate in a professional manner? How important are aesthetics in communications?
	Acquisition	
	Students will know… Specific differences in personal and business communications. How to format and write a business letter in google docs. How to edit and manipulate a table to create a resume on google docs.	*Students will be skilled at…* Creating appropriate business correspondence Creating a formal business letter and resume Manipulating a document in google docs Identifying appropriate language for business correspondence

Stage 2 – Evidence

Code	Evaluative Criteria	Assessment Evidence

T,M,A	Teacher Rubric	PERFORMANCE TASK(S): GOAL - Students will create cover letters and resumes to persuade the admissions committee at the college of their dreams to accept them into their program. ROLE - College applicant AUDIENCE - College admissions committee SITUATION - Student who would like to attend the college of their dreams. Creating a cover letter and a resume to convince the admission committee to accept them. PERFORMANCE - Students will utilize their keystroking skills along with their knowledge of appropriate business correspondence and google docs to create two professional business documents to accomplish a real life goal. STANDARD - Well written cover letter in block format with no errors, typed using google docs. Appropriately formatted resume containing all required elements created in google docs
		OTHER EVIDENCE:
A, T	Teacher checklist	Classwork assignments manipulating tables in google docs
A, T	Teacher checklist	Classwork assignment identifying appropriate and inappropriate business communications
A, T	Teacher observation	Completion of keyboarding assignments and tests
M, T	Teacher checklist	Creating, editing, sharing and submitting documents using google docs.

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Pre-assessments will include informal conversations with students regarding business vs personal communications. Pre-assessment will also include identifying elements of a business letter and manipulating a resume in table format using google docs.	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T,M	Students will be exposed to various articles and videos about appropriate business communication both oral and written. One example of an article https://www.forbes.com/sites/amyanderson/2013/05/28/successful-business-communication-it-starts-at-the-beginning/#54d90b4e1db5	Teacher evaluates student responses
T	Students will complete an online google docs tutorial	Monitoring and evaluating student progress on online exercises.
T	Students will be instructed on how to write a formal business letter using the block format with open punctuation.	Teacher evaluates student response to video questions
T,M	Students will be instructed how to create and manipulate documents and tables within google docs. They will also learn to save, edit, share and convert these documents.	Teacher evaluates student response to thought provoking article questions
T,M,A	Students will create a formal block format letter to be graded	Teacher and Peer evaluation
T,M,A	Students will create a resume of their own and share with friends to be corrected and edited.	

Stage 1 Desired Results

ESTABLISHED GOALS

1c
Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

1d
Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

4c
Students develop, test and refine prototypes as part of a cyclical design process.

6a
Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

6c
Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

6d
Students publish or present content that customizes the message and medium for their intended audiences.

CCSS.ELA-LITERACY.W.9-10.7- Conduct short as well as more sustained research projects to answer a question (including a self-generated

Transfer

Students will be able to independently use their learning to…

Price and build their own computer

Identify a variety of file extensions and recognize the programs used to read them

Assess the compatibility of devices and operating systems

Determine the best methods of connectivity for differing technological devices

Meaning

UNDERSTANDINGS *Students will understand that…*	ESSENTIAL QUESTIONS
Computers are made up of independent parts that work together	What devices will be most popular in the future? What parts are needed/used in differing devices?
Maintaining a digital device is key to its performance	What career paths are associated with device and computer architecture?
There are multiple means of saving files; which is best in each situation	What formats are used to store data and what are the pros and cons of each?
More instruments we use daily are becoming connected using embedded computers	What is bluetooth, WIFI and other connection technologies and how do they differ?
Computers and devices have various ports and connectors necessary to link to peripherals expanding their uses	How does the connectivity of stand alone devices improve our lives?

question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.		What are health concerns of using technology and how can you be proactive to protect yourself?
	Acquisition	
	Students will know… Basic computing component and digital device terminology There are many components that make up digital devices and which components are associated with each device Cloud computing is a method of file storage that is convenient but has ethical and logistical implications	*Students will be skilled at…* Analyzing and comparing different high performance computer systems Recommending a device purchase based on its usage plan Categorizing input and output devices Categorizing software and hardware. How to change settings on a mobile device to maximize performance and battery usage. Identifying “SMART” technology in various industries and applications Explaining how information is processed in a computer or device Evaluating apps for productivity, usefulness and impact on society.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
M, T	Teacher Rubric	PERFORMANCE TASK(S): Students will choose 1 from the following two scenarios: Students will work in teams of 2-3 to research online, analyze and determine the best mobile device and plan for a variety of people given a specific scenario Students will work in teams of 2-3 to analyze and determine the best parts to use when building a computer for specific people/companies, situations, and uses.

		OTHER EVIDENCE:
M, T	M/C and Completion	Computer and Device Components Quiz
A	Completion and Teacher Observation	Student Notes
M, T	Teacher Observation	Small group and large group discussions

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Pre-assessments will include informal conversations with students about the differences between hardware and software, input and output and the usage of smart devices.	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A	Teacher presents a Computer Terminology slideshow-- students will be invited to brainstorm/research examples of each of the terms in groups after they are given. Some terms are:processors, memory, the cloud, etc. Students will be taking notes in a three column format during this presentation and incorporating the definitions and examples into their notes.	Notes completion and teacher observation
A, M	Innovations in Computing: Students explore a wide variety of new and innovative computing platforms while expanding their understanding of what a computer can be. Teacher Plays the video The Internet of Things and leads a discussion on smart devices.	Teacher Observation
A, M, T	Innovation Research: Students will work in teams to research and report back on information about some of the most recent innovative computing devices related to a specific category such as agriculture or wearable technology.	Completion of Innovation Research Organizer
A	Input and Output: Students consider a number of computing devices to determine what types of inputs and outputs they use. Groups are assigned to a computing device and based on a teacher-provided definition of input and output, list the inputs and outputs of their device. To conclude the lesson the class examines common activities they do on a computing device and select the inputs and outputs used for that activity from the chart.	Completion of Input/Output chart
A, M	Processing: This lesson dives deeper into the concept of processing that was introduced as part of the definition of a computer. Pairs work together to put a deck of cards in order, a	Teacher Observation

	form of processing information. In the end, the class discusses what processing means within the context of solving information problems.	
M, T	Apps and Storage: This lesson covers the input and output aspects of computers in a context that is relevant and familiar to students: apps. The class evaluates various web applications to analyze the specific problems that they were designed to solve, the inputs that they need to work, and the outputs they provide to users. The class concludes with observations of these apps as well as a teacher led discussion about the impact of apps on society.	Teacher Observation
A	Teacher plays a video about the difference between hardware and software and leads a discussion with questions.	Teacher Observation
A	Teacher directs students to a web-based computer building simulation to practice building a computer from components.	Teacher Observation
M	Students research and discuss different cell phone data plans and various cell phones in a group of 3-4 using an organizer.	Completion of Organizer and Teacher Observation

Unit 5 - Computer Literacy: Intro to Programming

Pacing Guide: 3 weeks or 7-8 blocks

Stage 1 Desired Results

ESTABLISHED GOALS

1c
Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

1d
Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

4a
Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

5a
Students formulate problem definitions suited for technology assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.

5c

Transfer

Students will be able to independently use their learning to…

Connect programming concepts to employability skills

Identify everyday tasks completed that include programmed apparatus

Research, find, choose, and use web based developer tools

Meaning

UNDERSTANDINGS *Students will understand that…*	ESSENTIAL QUESTIONS
Learning how to program can increase problem solving skills	What ways of thinking or learning styles are used and enhanced through programming?
Program code is a type of algorithm-- a set of step by step instructions that carries out a task or solves a problem.	What career paths are associated with programming?

Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving. **7b** Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints. **7c** Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal. CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them. CCSS.MATH.PRACTICE.MP8 Look for and express regularity in repeated reasoning.	Flowcharts and pseudocode are essential parts to the programming process Skills in programming and computational thinking can be used in a wide variety of fields; not just technology.	What about programming makes it a skill that can be used in other ways?
	Acquisition	
	Students will know… Basic programming terminology The four steps to problem solving The definition of algorithm Basic history of programming Types of languages and examples of each A variety of toolsets that are available and used by computer programmers	*Students will be skilled at…* Finding courses, websites, and tutorials to build their skills in programming Using proper flowchart symbols to create a relevant flowchart for sketching a program Reading and understanding pseudocode Solving a problem that involves computational thinking independently and collaboratively. Identifying the three basic programming structures: sequence, selection and repetition.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
M, T	Code.org rubric	PERFORMANCE TASK(S): **Project - Propose an App** To conclude the study of the problem solving process and computer programming, the class proposes apps designed to solve real world problems. This project is completed across multiple days and culminates in a poster presentation highlighting the features of each app. The project is designed to be completed in pairs..

		OTHER EVIDENCE:
M	M/C and Completion questions	Computer Programming Vocabulary Quiz
M	Various MC questions	CodeHS Karel Quiz Questions
A, M, T	Completion and teacher rubric	Student Notes
A, M, T	Teacher observation	Small group and large group discussions
A, M	Short Answer Rubric	Problem Solving Worksheet Answers
A, M	Successful completion	Completion of Lessons 1-8 in CodeHS Programming with Karel

Stage 3 – Learning Plan

Code	***Pre-Assessment*** codehs.com Computing Ideas pretest (on the computer)	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A, T	Teacher presents a Computer Programming Terminology slideshow-- students will be invited to brainstorm/research examples of each of the terms in groups after they are given. Some terms are: object-oriented programming, IDE, flowchart, pseudocode, algorithm, etc. Students will be taking notes in a three column format during this presentation and incorporating the definitions and examples into their notes.	Teacher observation and notes completion
A	Video: Computer Science is Changing Everything Students watch this video and respond to various discussion questions regarding how computer science has enhanced their lives.	Teacher Observation
A, M, T	Guest Speaker: Careers in Computer Science A guest speaker will deliver a presentation on various interesting things one can do with a computer science degree (most likely a former NMHS student). Students will be required to brainstorm at least two questions they would like to ask the guest speaker ahead of time and add them to a shared document.	Teacher Observation and Question completion
A, T	Intro to Problem Solving: Aluminum Boats The class works in groups to design aluminum foil boats that will support as many pennies as possible. At the end of the lesson groups reflect on their experiences with the activity and make connections to the types of problem solving they will be doing for the rest of the course.	Activity Worksheet
A, M, T	The Problem Solving Process This lesson introduces the formal problem solving process that the class will use over the course of the unit, Define - Prepare - Try - Reflect. The class relates these steps to the aluminum boats problem from the previous lesson, then a problem they are good at solving, then a problem they want to improve at solving. At the end of the lesson the class collects a list of generally useful strategies for each step of the	Activity Worksheet

	process to put on posters that will be used throughout the unit.	
M, T	Exploring Problem Solving In this lesson the class applies the problem solving process to three different problems: a word search, a seating arrangement for a birthday party, and planning a trip. The problems grow increasingly complex and poorly defined to highlight how the problem solving process is particularly helpful when tackling these types of problems.	Activity Worksheet
A, M, T	Lessons 1-8 in CodeHS: Introduction to Programming with Karel the Dog Students are given various computational thinking and problem solving puzzles to solve individually or in groups.	Online completion of lessons

Stage 1 Desired Results

ESTABLISHED GOALS

1c
Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

3b
Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

4b
Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

6b
Students create original works or responsibly repurpose or remix digital resources into new creations.

7b
Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.

7c
Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

CCSS.ELA-LITERACY.W.9-10.2.A-Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Transfer

Students will be able to independently use their learning to…

Research and find web-based and/or free text editors necessary to use html and css to create websites

Create an html file that includes html elements, attributes, and values styled by css declarations

Create and manipulate a Google site

Recognize different types of websites

Use search engine operators to improve search results

Customize a web browser to enhance the browsing experience

Discuss the evolution of the Internet

Meaning

UNDERSTANDINGS

Students will understand that…

ISP's provide their Internet service

Net neutrality gives ISP's authority to charge differing rates

Html, css, and javascript each play a different role when building a website

The Universal Resource Locator has multiple parts and meanings

Problem solving is a skill that correlates to

ESSENTIAL QUESTIONS

What are the essential technologies that make up the INTERNET?

What jobs are available where web development skills could be useful?

Why would being able to express my thoughts using terms associated with websites and their construction be helpful

What format is best to use for graphics

CCSS.ELA-LITERACY.W.9-10.6 - Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically. CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.	debugging or fixing html/css coding issues The type of site being visited can be identified by the URL A web browser can be customized to better serve your needs	Why should websites be updated regularly What career paths are associated with web design How can I use the World Wide Web to solve problems What makes up a URL What should I set my browser homepage to? How can customizing bookmarks and favorites be useful? How does caching and cookies work and what are the positive and negative aspects of both?
	Acquisition	
	Students will know… How the labels web server, web site, web page, and hypertext link relate How html tags work Basic syntax of the html mark-up language Basic syntax of the css style sheet language What the difference is between the INTERNET and the World Wide Web? Basic terminology of web design and the Internet	*Students will be skilled at…* Using Internet and website terminology in their writing and conversation Identifying different video and audio file types Identifying different image file types Recognizing the amount of data used by a variety of daily device activities Determining the purpose of a website

	The steps necessary to creating and publishing a website The name of the ISP providing their service to their home as well as speed offerings and prices What search engine operators are and what each does to better the results of a web search	

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
		PERFORMANCE TASK(S):
M, T	Teacher Rubric	Students will create a simple webpage using html to mark-up and style their name and add a picture to be centered in a web browser using different colors. The project will also involve changing the text in the browser tab of their site. Some advanced students may use CSS...
		OTHER EVIDENCE:
M	M/C and Completion	Website Terminology Vocab Quiz
M	Teacher Observation	Students will add pages, links, and images to a Google site or a given web-based WYSIWYG web editor
A	Completion and Teacher Observation	Student Notes
M, T	Teacher Observation	Small group and large group discussions

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Think-pair share activity regarding website terminology, HTML coding, Colors and digital footprints.	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A	Teacher presents a Website Terminology slideshow-- students will be invited to brainstorm/research examples of each of the terms in groups after they are given. Some terms are: ISP, URL, HTML, CSS, etc. Students will be taking notes in a three column format during this presentation and incorporating the definitions and examples into their notes.	Teacher observation and notes completion
A	Exploring Websites Students learn the purposes that a website might serve, both for the users and the creators. The class explores a handful of the most-used websites in the United States and discusses how each of those sites is useful for users and how it might also serve its creators.	Completion of organizer and Teacher Observation

M, T	Websites for Expression Students learn that websites are a means of personal expression. The class first discusses different ways that people express and share their interests and ideas, then looks at a few exemplar websites made by students from a previous course. Finally everyone brainstorms and shares a list of topics and interests to include, creating a resource for developing a personal website in the rest of the unit.	Website Sketch and Teacher Observation
A, T	Intro to HTML Students are introduced to HTML as a solution to the problem of how to communicate both the content and structure of a website to a computer. The lesson begins with a brief unplugged activity demonstrating the challenges of effectively communicating the structure of a web page. The class looks at an HTML page in Web Lab and discusses how HTML tags help solve this problem, then uses HTML to write the first web pages of the unit.	Completion of WebLab Tutorial and Teacher Observation
M, T	Headers This lesson continues the introduction to HTML tags, this time with headers. The class practices using header tags to create page and section titles and learns how the different header elements are displayed by default. Next, the class plans how to organize their content on the personal web pages that will be built across the unit and begins the first page of the project.	Completion of Web Page and Teacher Observation
A, M, T	Digital Footprint Students discuss personal information people choose to share digitally. The class begins by discussing what types of information are good to share with other people, then looks at several sample social media pages to see what types of personal information could be shared intentionally or unintentionally. Finally, the class comes up with a set of guidelines to follow when putting information online.	Teacher Observation
A	RGB Colors and Classes This lesson covers classes and custom colors. The class first learns how to specify custom colors using RGB (red, green, blue) values. Students will be applying knowledge of these colors in the next project.	Teacher Observation
M, T	Multi-Page Websites This lesson covers hyperlinks, which allow web developers to connect pages together into one website. The class will link together all the previous pages into one project, make changes to text and colors, add images and create navigation bars for each	Completion of Site and Teacher Observation

	page before publishing the entire project to the Web.	
M, T	Sources and Search Engines After first completing a web search scavenger hunt, the class learns about the inner workings of search engines and has an opportunity to flex their analytical skills in a search for strange and unlikely animals.	Completion of Organizer and Teacher Observation