Fourth Grade Technology - Computer Science and Design Thinking Curriculum Map 2022

Pacing Guide	Standard Code & Indicator	Learning Activities	Assessment	Additional Standards:

August-October Orientation/ Google Suite Training	8.1.5.CS.1: Model how computing devices connect to other components to form a system. 8.1.5.CS.2: Model how computer software and hardware work together as a system to accomplish tasks. 8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.	-Review basic computer operating skills -Get orientation of Google classroom, docs, slides, sheets and forms -Google Forms Research Project -Use Google platform programs effectively within the scope of class needs -Insert information into a digital graphic organizer -Insert texts, pictures, graphs, tables or clipart into a Google Slide/Sheet -Execute word processing activities successfully -Keyboarding/Typing practice **Instructional Resources:** Gsuite training Grow with Google https://www.typing.com/student/lessons **Teacher Technology:** Computer Activ Panel Acitiv View YouTube Videos	**Formative Assessments:** Classwork Student Participation Teacher Observation **Summative Assessments:** Google doc- All about my summer (and submission) Google Slide Assignment Google Sheet Assignment **Benchmark Assessment:** BOY Benchmark Accommodations and Modifications	**Interdisciplinary Standard:** RI.4.7: Interpret information presented visually, orally and quantitatively (e.g. in charts, graphs, diagrams, web pages)

November/ December	8.1.5.NI.2: Describe physical and digital security measures for protecting sensitive personal information.	-Apply copyright law vocabulary	**Formative Assessments:** Classwork Student Participation Teacher Observation	**Interdisciplinary Standard:** W.4.8 - Recall relevant information from experiences or gather relevant information.
Networks and the Internet/Cyber Safety	9.4.5.DC.1: Explain the need for and use of copyrights.	-Explain why we must practice cyber safety		
	9.4.5.DC.2: Provide attribution according to intellectual property rights guidelines using public domain or creative commons media.	-Safe internet search engines -How can we stay safe when using social media?	**Summative Assessments:** Google doc- Poster on Hacking, Piracy, Plagiarization and using strong passwords Student made Netiquette code	
	9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions.	-Define and discuss plagiarism		
	9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).	-Discuss digital citizenship -Appropriate/inappropriate use of technology	Accommodations and Modifications	
	9.4.5.DC.5: Identify the characteristics of a positive and negative online identity and the lasting implications of online activity.	-Explore copyright laws and their consequences **Instructional Resources:** Gsuite training Grow with Google		
	9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions (e.g., 8.1.5.IC.1).	**Teacher Technology:** Computer Activ Panel Acitiv View YouTube Videos BrainPop Jr. GSuite Copyright		
	9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.			
	9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole.	**Student Technology:** Computer; iPads Google Classroom		

| January - March

Design Process | 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

8.2.5.ETW.1: Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems.

8.2.5.ETW.4: Explain the impact that resources, such as energy and materials used to develop technology, have on the environment.

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process | -Define an engineer and research their job responsibilities

-Group project researching different types of engineers.

-Examine the design process step by step and define words such as develop, test, install, inspect, evaluate.

- Plan and design:
   - Electric Circuits
   -EiE Solar Ovens
   -Bridge Challenge
   -Lego Challenge

-Explore different resources such as material and energy when brainstorming.

-Alternative uses of items and the design process- playdough boat.

Instructional Resources:
Google
Physics games- bridge builder
Legos

Instructional Resources:
Gsuite training
Grow with Google
Simulations:
https://phet.colorado.edu/en/si mulations/energy-forms-and- | **Formative Assessments:**
Classwork
Student Participation
Teacher Observation

Summative Assessments:
Lego Tower
Play Doh boat
Successful bridge-
Digital simulation

Accommodations and Modifications | **Interdisciplinary Standard:**
3-5-ETS1-2. In learning about the design process, we will look at multiple solutions to a problem, identify best solutions based on constraints and constraints. |
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| April-June Research/ Data and Analysis | 8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim.

8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data. | -Identify how technology has impacted our lives (provide examples)

-Research where in the United States and around the world access to clean water is an issue using appropriate websites.

-Gather data about how much water students use each day (e.g., number of minutes they take a shower, number of water bottles/glasses of water they drink, etc.) and record information in a Google Sheet.

-Collect and organize data using tables, charts and/or graphs.

-Create a digital chart and analyze results.

-Create a digital commercial that describes appropriate water conservation methods

-Research information about how to live more sustainably by reducing waste, water, energy etc. Include different challenges complete with information sheets about calculating water use, doing home and school water audits | **Formative Assessments:** Classwork Student Participation Teacher Observation

Summative Assessments: Conserve Water Project Google Sheet Data Collection

Benchmark Assessment: EOY benchmark

Accommodations and Modifications | **Interdisciplinary Standard:** W.5.9: Draw evidence from literary or informational texts to support analysis, reflection and research. |

Alternate Assessments: Problem solving skills with Water Conservation; Creation of law video (for students), Activities/Worksheets
21st Century Standards: 9.2.4.A.1 and 9.2.4.A.3
21st Century Skills: Technology literacy, Flexibility, Critical Thinking and Leadership
Career Ready Practice: CRP 6, CRP 11, CRP 4