Unit 1: How does the World Wide Web work and how are web pages built?

Content Area: **Computer Science**
Course(s):
Time Period: **Trimester 1**
Length: **20 weeks**
Status: **Published**

BRIEF SUMMARY OF UNIT

Students will learn what the internet is and how it is used by the World Wide Web. In this unit, students will learn how web pages are built, transported, stored and viewed. Students will create their own web page using HTML and CSS.

STANDARDS

Diversity and Inclusion: Students will focus on equity, inclusion, and tolerance when analyzing the comparison of various quantities regarding characteristics of people. Equality will also be highlighted through the topic of citizenship. This can be associated with treating people fairly and equally.

- • 8.1.8.CS.3: Justify design decisions and explain potential system trade-offs.
- • 8.1.8.CS.4: Systematically apply troubleshooting strategies to identify and resolve hardware and software problems in computing systems.
- • 8.1.8.NI.1: Model how information is broken down into smaller pieces, transmitted as addressed packets through multiple devices over networks and the Internet, and reassembled at the destination.
- • 8.1.8.NI.2: Model the role of protocols in transmitting data across networks and the Internet and how they enable secure and errorless communication.•
- • 9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
- • 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

LA.K-12.NJSLSA.L4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
LA.K-12.NJSLSA.L5	Demonstrate understanding of word relationships and nuances in word meanings.
SOC.6.3	Active Citizenship in the 21st Century
SCI.MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
SCI.MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.

TECH.9.4.8.CI.3	Examine challenges that may exist in the adoption of new ideas (e.g., 2.1.8.SSH, 6.1.8.CivicsPD.2).
TECH.9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries.
TECH.9.4.8.DC.1	Analyze the resource citations in online materials for proper use.
TECH.9.4.8.IML.1	Critically curate multiple resources to assess the credibility of sources when searching for information.
TECH.9.4.8.IML.9	Distinguish between ethical and unethical uses of information and media (e.g., 1.5.8.CR3b, 8.2.8.EC.2).
TECH.9.4.8.IML.10	Examine the consequences of the uses of media (e.g., RI.8.7).
TECH.9.4.8.IML.11	Predict the personal and community impact of online and social media activities.
	Multiple solutions often exist to solve a problem.
	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
	Digital tools make it possible to analyze and interpret data, including text, images, and sound. These tools allow for broad concepts and data to be more effectively communicated.
	Increases in the quantity of information available through electronic means have heightened the need to check sources for possible distortion, exaggeration, or misrepresentation.

TRANSFER

- • Create websites for personal use and/or school projects.
- • Extend this basic learning of website design and construction to more advanced learning of website development.
- • Gain a deeper understanding and appreciation of website construction.

ESSENTIAL QUESTIONS

- • How do different browsers interact with websites?
- • How do different devices interact with websites?
- • How is JavaScript used to add interaction to a website?
- • What are the basic HTML/CSS tags?
- • How does the Internet and World Wide Web work?

ESSENTIAL UNDERSTANDINGS

- • The Internet connects computers, the web connects information, i.e. hypertext documents via the internet.
- • The World Wide Web is a system that uses various computer programs and the internet to connect pages of information from around the world.
- • Using a network connection, including connecting to the Internet, computers connect to each other to transmit data between them and communicate with each other using the TCP/IP (Transmission

Control Protocol / Internet Protocol)

- • Websites can be constructed by using a text editor and programming languages like HTML, JavaScript, CSS and others.
- • The internet is an enormous network of computers connected across the whole world by cables and wireless signals. It is used for things like the www, email, downloading music, etc.

STUDENTS WILL KNOW

- • How the Internet and the WWW transfer data.
- • Internet and World Wide Web terminology.
- • Textual content and media borrowed from a website must be given credit through citations.
- • The basic HTML/CSS tags.
- • The history of the internet and World Wide Web.
- • The parts of a web page address (URL).

STUDENTS WILL BE SKILLED AT

- • Creating basic web pages using HTML/CSS code.
- • Using HTML code to change the appearance of text style, i.e., bold and italic.
- • Using HTML code to create main and minor headings on a web page.
- • Citing resources in MLA format.
- • Adding images to a web page using HTML.
- • Coding a hyperlink in an HTML page.
- • Debugging their websites.
- • Using CSS ID's and Classifications.
- • Using CSS to change the color of hyperlinks, text, and web pages.
- • Using HTML to create numbered and bulleted lists.

EVIDENCE/PERFORMANCE TASKS

Assessments

- Formative: Daily assessments using examples from class notes and CodeHS.com
- Summative: Teacher-created assessments/projects and CodeHS Computer Science Projects
- Benchmark: Check for understanding benchmark assessments on CodeHS
- Alternative Assessments: Student-centered activities such as a doorbell coding project, game design projects, and other activities involving real world applications

- Activities/Assessments Folder

Core instructional materials: Core Book List

Supplemental materials: Khan Academy

- • Web Page Project.
- • Website Evaluation Assignment/Test.
- • Ability to code part of the class website.
- • Khan Academy HTML/CSS tutorials, CodeHS, or other Coding Tutorial Platform results.
- • Student slideshow presentations on Internet and World Wide Web terminology.

LEARNING PLAN

- • Students are introduced to a tutorial coding platform to learn HTML/CSS.
- • Students research Internet and WWW terms and cite them.
- • Teacher assists students when needed, students are encouraged to help each other.
- • Webpage/Website projects are introduced and assigned.
- • Class discussion on each term.
- • Each student presents a slideshow on an Internet or WWW term and explains the term.
- • Overview is given of HTML/CSS.
- • Students debug their websites with teacher's/classmate's assistance.
- • Students present their websites.
- • Teacher gives overview and resources for citing sources in MLA format.
- • What is the Internet and who Controls it? Video and Discussion.

MATERIALS

Core instructional materials: Core Book List

Supplemental materials: CodeHS

https://codehs.com/

https://codehs.com/uploads/982b092ca257d83d0eb2b8d107de803f

https://www.khanacademy.org/computing/computer-programming

- • How to cite a Website - https://www.scribbr.com/mla/website-citation/
- • How to cite an image - https://www.scribbr.com/mla/image-citation/
- • HTML/CSS tutorials - https://www.khanacademy.org/, https://codehs.com/, W3schools.com
- • What is the Internet? https://www.youtube.com/watch?v=Dxcc6ycZ73M
- • YouTube Videos about the Internet/World Wide Web

SUGGESTED STRATEGIES FOR MODIFICATIONS

Possible accommodations/modification for Computers - Grade 7