Unit 1 What is the Web?

Content Area: **Computer Science**
Course(s):
Time Period: **Marking Period 1**
Length: **5 days**
Status: **Published**

Summary

Unit 1 builds the conceptual foundation students need before they begin creating their own web pages with HTML (Unit 2) and styling them with CSS (Unit 3). Rather than writing code, students step back to understand what the web actually is and how it works. They examine what web design is and how websites have reshaped education, the arts, and commerce; explore the internet as a network of networks and its impact on daily life; trace exactly what happens between typing a URL and seeing a page appear, including the request–response cycle and the role of the browser; and reflect on how their own online activity builds a permanent, public digital footprint. The unit closes with a summative assessment of these ideas.

Throughout the unit, students communicate their thinking through short free-response writing, connection-video reflections, and structured class discussion, establishing habits of clear technical communication that carry into the coding units that follow.

Revision Date: July 2026

Essential Questions

- What is the web, and how does it shape the way we learn, create, and communicate?
- How is the internet structured, and why does that structure matter?
- What actually happens between typing a URL and seeing a web page appear?
- What is a digital footprint, and how do our online choices affect our reputation now and in the future?

Enduring Understandings

• The internet is a network of networks that moves information between devices through requests and responses.

• When a URL is entered, a request is sent to a server, which responds with a file that the browser then renders

into a viewable page.

• A browser's job is to interpret code (HTML and CSS) and display it, and different browsers can present the same site differently.

• Computing technologies carry trade-offs that reshape everyday life, work, and career opportunities.

• Everything shared online contributes to a permanent, public digital footprint that can have real-world consequences.

Students Will Know

- The internet is a network of networks that moves information between devices through requests and responses.
- When a URL is entered, a request is sent to a server, which responds with a file that the browser then renders into a viewable page.
- A browser's job is to interpret code (HTML and CSS) and display it, and different browsers can present the same site differently.
- Computing technologies carry trade-offs that reshape everyday life, work, and career opportunities.
- Everything shared online contributes to a permanent, public digital footprint that can have real-world consequences.

Students Will Be Skilled At

- Identifying how websites have changed education, the arts, and commerce, and articulate personal goals for the course.
- Explaining that the internet is a network of networks and describe how a specific web page reaches their device.
- Describing the internet's impact on day-to-day life, including collaborative efforts such as crowdsourcing.
- Describing the request–response process that occurs when a URL is entered, and explain the role of the browser in rendering a page.
- Explaining how and why different browsers can affect the way a website is displayed.

- Explaining how online activity builds a permanent digital footprint and develop personal guidelines to protect their reputation.

Learning Plan

Lesson	Focus	Key Activities
1.1 Welcome	Introduces web design and how websites shape education, the arts, and commerce; students set personal course goals.	Welcome video + quiz; Websites in Your Life; What Is Web Design?; Meet a Web Developer; Course Goals / Goal Setting handout
1.2 The Internet	Frames the internet as a network of networks, how pages reach a device, and the internet's impact on daily life.	The Internet video + quiz; A Day Without the Internet (3-paragraph response); Crowdsourcing connection video; Exploring Crowdsourcing (Zooniverse)
1.3 Viewing Websites	Traces the request–response cycle behind a URL and the role and impact of browsers.	Viewing Websites video + quiz; Explaining a URL response; Hometown URLs handout; What Is a Browser?; Viewing Websites in Different Browsers + reflection
1.4 Digital Footprint & Reputation	Examines how online activity builds a permanent, public footprint and how to protect one's reputation.	Digital Footprint video + quiz; Building a Positive Digital Footprint; Right to Be Forgotten? reflection (Think-Pair-Share); Social Media Clean-Up simulation; Digital Footprint handout
1.5 Unit Quiz	Summative assessment of the unit's learning objectives.	Getting Started – What Is the Web? Quiz; Getting Started Badge

Key Vocabulary

Term	Definition
Web design	The practice of planning, creating, and styling web pages and the way people interact with them.
Internet	A network of networks that connects computing devices around the world so they can share information.
Network	A group of connected devices that can share information and resources.
URL	Uniform Resource Locator — the address typed into a browser that specifies which file is being requested.
Request / Response	A request asks a server for a specific file; the response is the file the server sends back.
Server	A computer that receives a request, locates the correct file, and sends back a response.
Browser	A program on your computer that sends requests for web pages and

	displays them by interpreting HTML (and CSS) code.
HTML / CSS	The code that describes a page's content and appearance; the browser renders this code into a viewable page.
Crowdsourcing	Solving a problem by drawing on contributions from a large group of people, often online.
Digital footprint	The information about a person that exists on the internet as a result of their online activity.
Reputation	How a person is perceived by others, which their digital footprint can shape.

Assessment

Formative

- Lesson quizzes for 1.1, 1.2, 1.3, and 1.4.
- Free-response activities: Explaining a URL; A Day Without the Internet; Building a Positive Digital Footprint; What Is Your Digital Footprint?
- Connection-video and article reflections: Crowdsourcing; Viewing Websites in Different Browsers; Right to Be Forgotten?
- Beginning- and end-of-class discussion questions.
- Handouts: Goal Setting; Hometown URLs; Digital Footprint.

Summative

- 1.5.1 Getting Started – What Is the Web? Quiz — the end-of-unit assessment.
- 1.5.2 Getting Started Badge.

Benchmark

• Pretest / Posttest: Web Design Knowledge and Skills (with the Interpreting Pretest Results guide) measures growth in content knowledge against the unit’s standards.

Alternative

• Pretest / Posttest: Student Mindsets — a self-report survey capturing shifts in student attitudes and confidence toward web design, rather than content knowledge.

Materials

Core instructional materials:

- CodeHS Web Design course — Unit 1 lessons, videos, and slide decks.
- Handouts — Goal Setting, Hometown URLs, Digital Footprint, and the Unit Reflection.
- External sites — Zooniverse (crowdsourcing exploration) and WordArt (identity word cloud).
- Thinking routines — Think-Pair-Share, Class Discussion Notes template, and the Peer Code Review template.
- Student devices with internet access and a web browser; optionally more than one browser for comparison in Lesson 1.3.

Supplemental materials: Printed slide decks, a student login-credentials sheet, and the Student Honor Code.

Standards

1	Developing Questions and Planning Inquiry
	Protocols, packets, and addressing are the key components for reliable delivery of information across networks.
6	Engaging in Civil Discourse and Critiquing Conclusions
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.
	The information sent and received across networks can be protected from unauthorized access and modification in a variety of ways. The evolution of malware leads to understanding the key security measures and best practices needed to proactively address the threat to digital data.
8.1.8.NI.3	Explain how network security depends on a combination of hardware, software, and practices that control access to data and systems.
8.1.8.NI.4	Explain how new security measures have been created in response to key malware events.
AP	Algorithms & Programming
	Individuals design algorithms that are reusable in many situations. Algorithms that are readable are easier to follow, test, and debug.
8.1.8.AP.1	Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.
	Programmers create variables to store data values of different types and perform appropriate operations on their values.

8.1.8.AP.2	Create clearly named variables that represent different data types and perform operations on their values.
	Control structures are selected and combined in programs to solve more complex problems.
8.1.8.AP.3	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
	Programs use procedures to organize code and hide implementation details. Procedures can be repurposed in new programs. Defining parameters for procedures can generalize behavior and increase reusability.
8.1.8.AP.4	Decompose problems and sub-problems into parts to facilitate the design, implementation, and review of programs.
8.1.8.AP.5	Create procedures with parameters to organize code and make it easier to reuse.
	Individuals design and test solutions to identify problems taking into consideration the diverse needs of the users and the community.
8.1.8.AP.6	Refine a solution that meets users' needs by incorporating feedback from team members and users.
8.1.8.AP.7	Design programs, incorporating existing code, media, and libraries, and give attribution.
8.1.8.AP.8	Systematically test and refine programs using a range of test cases and users.
8.1.8.AP.9	Document programs in order to make them easier to follow, test, and debug.

Suggested Strategies for Modification

Suggested Strategies for Modification for Computer Science