Unit 5: Advanced HTML & CSS

Content Area: **Computer Science**
Course(s):
Time Period: **Marking Period 2**
Length: **26 Days**
Status: **Published**

Summary

In this unit, students will begin creating multi-file websites, and using external stylesheets to style those sites. Additionally, students will learn about divs, spans, iframes, image filters, image animation, and image interaction. More advanced CSS topics will be examined, including combining CSS selectors, special selectors, the "Don't Repeat Yourself" principle, visibility, using the inspector feature of a browser, and the Box Model. If not discussed previously, the importance of commenting code should be discussed here.

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MA.9-12.1.2.12prof.Cr	Creating
MA.9-12.1.2.12prof.Cr2	Organizing and developing ideas.
TECH.8.1.12.A.2	Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.
TECH.8.1.12.B.CS2	Create original works as a means of personal or group expression.
TECH.8.1.12.D.1	Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.
TECH.8.2.12.C.CS1	The attributes of design.
	Engineers use science, mathematics, and other disciplines to improve technology. Increased collaboration among engineers, scientists, and mathematicians can improve their work and designs. Technology, product, or system redesign can be more difficult than the original design.
	Network security depends on a combination of hardware, software, and practices that protect data while it is at rest, in transit, and in use. The needs of users and the sensitivity of data determine the level of security implemented. Advanced attacks take advantage of common security vulnerabilities.
	Engineering design evaluation, a process for determining how well a solution meets requirements, involves systematic comparisons between requirements, specifications, and constraints.
	Complex programs are designed as systems of interacting modules, each with a specific role, coordinating for a common overall purpose. Modules allow for better management of complex tasks.
	The design and use of computing technologies and artifacts can positively or negatively affect equitable access to information and opportunities.
	Complex programs are developed, tested, and analyzed by teams drawing on the members' diverse strengths using a variety of resources, libraries, and tools.
	A computing system involves interaction among the user, hardware, application software, and system software.

Essential Questions/Enduring Understandings

Essential Questions:

- What is the benefit to using an iframe?
- Why is it a good idea to eliminate repeated CSS code?
- What is the advantage to using an external style sheet (or multiple sheets) to control the style of a multi-page website?

Enduring Understandings:

- Using an iframe allows you to include content external to your site so that the user does not actually have to leave your site to see that content. This is good for both you and the provider of the content. You get the benefit of keeping somebody on your webpage, and the provider's content gets wider exposure.
- Eliminating repeated CSS code helps to minimize the chance of making an error in your code, and it makes your code easier for someone else to read.
- External stylesheets allow us to write CSS code once to control the style of multiple pages. It is also easier to make changes to the style of your site if you only have to look in one place to do it.

Objectives

Students Will Know:

- how to work with an external style sheet.
- how to embed iframes.
- how to use special selectors
- how to change the visibility of content on their page.

Students Will be Skilled at:

- using divs and spans to help style their pages.
- identifying opportunities to refactor their code.
- using the inspector feature of a web browser.
- using the Box Model to enhance the layout of content.
- animating, manipulating, and allowing interaction with content on their site to provide a more engaging experience for the user.

Learning Plan

Suggested Sequence:

- Multi-file websites and external stylesheets

- Embedding iframes
- Divs
- Spans
- Favorite Animal Project
- Combining CSS Selectors*
- The "Don't Repeat Yourself (DRY)" principle
- Special Selectors (psuedo classes and psuedo elements)
- Visibility
- Using the Inspector
- The Box Model*
- Image Manipulation (filters)
- Image Animation
- Image Interaction
- About Me Project Enhancement

* Asterisked topics may be omitted or used as an enrichment topic.

Assessment

- Assessments

    - Formative: Daily assessments using examples from class notes and CodeHS.com, AP Classroom/Albert Checks for Understanding

    - Summative: Teacher-created assessments/projects and CodeHS Computer Science Projects, AP Classroom/Albert Unit Assessments

    - Benchmark: Check for understanding benchmark assessments on CodeHS, AP Classroom/Albert/Khan Academy Diagnostics

    - Alternative Assessments: Student-centered activities such as a doorbell coding project, game design projects, and other activities involving real world applications

- Favorite Animal Project
    - Students create a website consisting of at least two html files and a css file about their favorite animal using divs to match the provided layout.

- About Me Project Enhancement
    - Students go back to their About Me projects, and enhance them by including at least five new concepts from this unit.

Materials

- Core instructional materials: Core Book List

Supplemental materials: CodeHS

- Internet
- Computers
- Projection sytem for lecture
- w3schools
- codehs (for remidiation and differentiation as deemed appropriate)