CodeHS

Web Design (Picasso) K-12 CS Framework Alignment Overview

The Web Design course is a first computer science course introducing the basics of designing a web page, how information and images are rendered on the Web, and designing user interfaces. This document is an overview of how the Web Design course aligns with the K-12 CS Framework's concepts and practices.

K-12 CS Framework Practices

Fostering an Inclusive Computing Culture

Through collaborative projects, students learn to include a diverse set of perspectives in the development process and functionality of their computational artifacts, namely their own websites.

Collaborating Around Computing

This course provides several opportunities for students to create computational artifacts both individually and in teams. Several small group and full class activities are included in the curriculum. CodeHS provides guidance for implementing pair programming in the classroom.

Recognizing and Defining Computational Problems

As the problems in the course get more and more complex, the course teaches students to break down large, complex problems into manageable subproblems that can be solved independently. The course continually emphasizes decomposition and top down design.

Developing and Using Abstractions

The Wb Design course teaches students to develop abstractions to manage the complexity of their programs. Students develop and use their own abstractions to generalize their solutions and simplify the development process. Students learn about existing Web technological functionalities and incorporate them into new designs for their websites.

Creating Computational Artifacts

This course has a huge emphasis on creating computational artifacts. In each lesson of the course, students develop their own computational artifacts both for creative expression to share information and more on their sites. Students create use images, text and more on their websites, and consider overall user interface design in the Web Design course.

Testing and Refining Computational Artifacts

Testing and refining computational artifacts is an important part of the development process that is emphasized in the Web Design course. The course teaches students to test their websites in browsers, identify and fix errors, and optimize their web page's visual space when designing and laying out their sites, pages, and related artifacts.

Communicating About Computing

This course gives students several opportunities to communicate their ideas and solutions to others. Students are encouraged to describe and justify their solutions to their teachers and their peers. Students are also required to document their web pages to communicate how it works.

K-12 CS Framework Concepts

Computing Systems

Computing Systems is a core concept throughout the Web Design course. Students learn about internet and how humans interact with websites. Students learn about website organization including the relationship between hardware and software and how they can create mobile responsive sites. Troubleshooting websites is a core concept of the Web Design course as well. Sites might not work as expected because of problems in the HTML, CSS, or browser. Students are expected to identify problems in their sites and fix them.

Networks and the Internet

In Web unit, students learn learn about network communication and organization, basic Internet protocols, and Internet addressing, Students learn about the importance of cybersecurity and the various security measures we take to protect information and privacy on the Internet.

Data and Analysis

The Web Design course teaches students how to make choices about how data elements are organized and where data is stored on websites. Students can consider these choices in terms of speed, reliability, accessibility, privacy, and integrity and how those choices impact their own site development.

Algorithms and Programming

Complex websites are designed as systems of interacting or nested modules, each with a specific role, coordinating for a common overall purpose. These modules can be combinations of data (images, text, etc.) which allow for better management of complex sites.

Impacts of Computing

Computing has had significant impacts in several fields. In this course, students learn about the positive and negative impacts the Internet has had on culture, social interactions, safety, and privacy. Students also learn the ethical considerations of sharing their code with others, and finding solutions to CodeHS exercises online.