

# Networking

## **Concept Overview**

This unit focused on learning how computers communicate with each other via the Internet. The main language that computers use to browse the internet is HTTP. This involves sending requests from one computer to the other. There are two main forms of requests, get and post. When a computer sends a get request, they are asking the web server for information, such as a webpage or information on the webpage. A post request will make a change, such as logging in, editing a page, or otherwise interacting with the page. Every time a request is made, the web server will respond with a status code. Codes in the 200s mean the request was successful, but other codes, especially codes in the 400s and 500s indicate that there was an error in the request or the response.

A web server is specifically a computer that hosts a web page. There will be one program that holds the logic and data, and then another which takes care of how the user will interact with the website. It will include the possible get and post requests that the user could make and how they will be handled.

## **How Networking Will Fit Into My Teaching Context**

Networking and the internet are currently a topic that is a part of the AP Computer Science Principles course, though students only need to know the general principle that computers “talk” to each other via HTTP and that websites typically use HTML to let computers know how to display the websites. Students also need to know the protocols the internet uses to work and to be able to scale, as well as how computers use private and public keys for asymmetric encryption. The students need to know and be able to explain what happens when a computer accesses a website, from sending a get or post request, to sending the information over the physical internet via packets with a protocol for receiving them, and then how that information will get displayed on the screen.

## **Proposal for Teaching Networking**

Since the AP CSP curriculum does not go very in-depth with how computers and servers manage the get and post requests, this unit, or something like it, could be useful as an after-AP exam unit to allow the students to investigate more deeply what is happening when computers are communicating with websites. Additionally, this would be a great unit to begin a web development course in. While web development requires students to know how to build an aesthetically pleasing and functional website, knowing how computers actually work together to make a webpage show up on a screen and function is crucial to developing good websites.