Classroom Teacher Preparation

Technology 6: Building a Webpage

Please use the following to prepare for the next SfS lesson.

Description:

What happens "behind the screen" when we click on a button or type in a URL on our computer? This module presents the basic structure of a web page and will help students understand what happens when they visit a webpage. Student teams compete to "load" their webpage fastest, modeling the operation of a browser: they use simple HTML commands, travel through a model network to retrieve files from servers, and assemble the text and images to create the finished webpage.

Lesson Objectives – SWBAT ("Students Will Be Able To…"):

6th-8th

- Interpret simple HTML commands in order to create a model webpage
- Model the transfer of text and image data over a network
- Describe the relationships between browsers, webpages, routers, cables, and servers

Disciplinary Core Idea (DCI):

- No DCI applies

Science & Engineering Practice (SEP):

Developing and Using Models

Preparation:

This lesson is foundational, but students should have at least some experience using the Internet.

Room Set Up for Activities:

This is an active lesson; it will require a large section of floor space to lay out the "network" and to allow for workspace at each group's "node". In most classrooms it will be best to push desks & chairs to the perimeter of the room and have the network be in the center.

This lesson will require two stationary adults – an instructor and you, the classroom teacher – as the two "servers", while the lead instructor moderates the activity.

Safety:

There are no safety issues, but students should not run during the activity.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on **Technology**. Modules include:

Technology 7: *Digital Footprint* – Students learn about the digital footprints they leave when using the Internet by investigating social media profiles and search histories of Internet users to see what they can infer.

Technology 1: Binary Code and Communication – This lesson introduces students to the parts of a communication system (including encoder and decoder) and to how binary code works through several activities involving encoding and decoding.

Technology 3: *Conditionals in Code* – This foundational lesson introduces the concept of a conditional statement, relating it initially to students' everyday decision-making processes, and then using a game to allow students to observe the execution of conditional statements, as they would occur within the context of running a computer program.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state: http://www.sciencefromscientists.org/standards/

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson by inviting students to run the HTML programs they assembled during the activity. It is assumed that students will know how to create a folder, save a file to that folder, and navigate to the folder on their operating systems.

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

- More on HTML, beyond the small number of tags used in the activity: http://www.simplehtmlguide.com/essential.php
- A more thorough tutorial and useful reference for HTML (the site has other languages as well): https://www.w3schools.com/html/default.asp
- For those interested in the history of the Internet and the World Wide Web, SciShow has a series of videos: https://www.youtube.com/watch?v=1UStbvRnwmQ is episode 1.