Lesson Plan

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CTE Area: Programming and Web Development

Unit of Instruction: Freshman Exploratory

Topics of Instruction: Session 1 - Computer Hardware
Session 2 - HTML Programming

Standards/Competency:

The following Programming and Web Development Standards are touched upon in the
two sessions but not covered in any depth:

2.F   Create HTML documents.
2.F.01c   Work with multiple applications (ASCII editor and browser).
2.F.02c   Create an HTML document using simple HTML tags.
2.F.03c   Launch HTML document in a browser.
2.F.04c   Apply basic debugging techniques.

2.G   Classify and install computer hardware.
2.G.01c   Identify main classification of computers.
2.G.02c   Identify major hardware components, their functions and
relationships.
2.G.03c   Identify types of computer storage devices.
2.G.04c   Practice proper handling procedures for components.
2.G.05c   Install and configure hardware in a computer system.

Goals:

The goal of this exploratory is for students to develop an understanding of the tasks
completed daily by individuals employed in the computer technology industry. The
range of positions in this category is so vast that the exploratory only scratches the
surface. During their time in exploratory, students are also made aware of the potential
employment/educational opportunities available to students who graduate from the
Programming and Web Development major.

Responsibility for meeting these goals is shared between the two instructors in the area.
This lesson plan outlines the curriculum that is to be delivered in support of two specific
areas; computer hardware and web page development using HTML.

Objectives:

Session 1:

- Students will be able to describe what the phrase "Shop Readiness" means.
- Students will be able to list and identify at least 5 components of a computer.
- In small groups, students will be able to disassemble and reassemble a computer.

Session 2:

- Students will be able create, edit and save HTML files using a text editor (Microsoft Windows Notepad).
- Students will be able to list several web browsers.
- Students will be able to display HTML files using a web browser.
- Students will be able to list file extension and match them with the type of file they belong to.

Outline:

Introduction:

Session 1: As students filter back from lunch they are told to continue working on the StoryTelling Alice animation activity that they were working on prior lunch. Once all students have arrived, a discussion about shop readiness and the afternoon's computer hardware activity begins.

Session 2: As students filter back from lunch they are told to grab an Internet Terms word search and work on it until the remainder of the students have returned. Once students are all back from lunch the afternoon's web page development activity begins.

Content:

Session 1:

Class begins with coverage of Minuteman's shop readiness policy. What does it require of all students? (Safety Glasses, Closed Toe Shoes, Long Pants, Master Binder and a Pen or Pencil). At the conclusion of this discussion, any student without safety glasses will be provided with a "loaner" pair.

A brief discussion is undertaken where some general electrical and materials handling safety issues are brought up before students start the activity. Students are then broken into small groups for the activity. Each group is provided with a non-functional computer and instructed to disassemble it (taking copious notes as they proceed). The instructor circulates throughout the room as the activity goes on, both assisting as necessary and asking questions of the students intended to help them discover more about the internal workings of the computer. Students will be provided with the proper terminology for internal components in the computer system.

Session 2

Students will be asked to open Notepad and then will be led, step-by-step through the process of creating a web page on a topic of their own choosing. Students will be provided with the general syntax of HTML elements and then asked to adapt the element to their own page.

Examples of the elements that students will be able to implement on their own pages include: General Page Layout Headings, Horizontal Rules, Changes to Background and Text Color, Paragraphs, Ordered and Unordered Lists, Images, Hyperlinks, Fonts, Text Formatting.

Once students have completed the page, they have the ability to take it home with them on a flash drive. Each student was provided with one within the contents of their Master Binder.

Conclusion:

Session 1

As students complete the assembly of their computer, the instructor will check their work and provide feedback. Once the groups have completed the activity, each student is given a Computer Hardware word search to work on. The word search contains a selection of terms that are related to what the students have been exposed to over the afternoon session. Day 1 concludes with a discussion of the hardware activity and brief overview of what will be done on the second day. Students are told that they will be able to bring their computer work home with them if they bring a flash drive with them on Day 2.

Session 2

Session 2 concludes with students being asked to complete the Programming and Web Development Sheet in their Master Binder. Once they have completed the sheet, they continue to work on the Internet Terms word search to work on while students are called forward for a one-on-one discussion regarding their current thinking regarding selection of a technical area, any comments that they might have on their experiences of the past two days and to be provided with their score for the two days they spent in Programming and Web Development.

Assessment Methodology:

Since this is an exploratory, the only summative assessment of the students is the Exploratoy Evaluation Form.

Formative assessments are used to assess each students predisposition toward the technical program. For the day 1 activity, they are in the form of Socratic questions that are asked during the computer disassembly/assembly process.

An additional formative assessment is the on the fly evaluation of the web pages that students create and the ease with which they adapt the HTML example to their own use.

Neither of these formative assessments in any way contributes to the student's Exploratory Evaluation.

Resources:

Materials:

Day 1
- Obsolete computers (to be disassembled and reassembled)
- Phillips screwdrivers
- 1/4 inch nut drivers
- Computer Component handouts
- Computer Component word searches
- "How It's Made" video on factory assembly of computers

Day 2
- Computers with Microsoft Windows, Notepad and at least one web browser installed.
- Internet Access
- Sheet of Basic HTML codes
- Internet Terms word searches

References:

The following websites may be used during the HTML Programming portion of the curriculum:

http://www.html-color-codes.info	For use in determining color codes
http://www.google.com	For use in locating images for pages
http://w3schools.com	General HTML reference