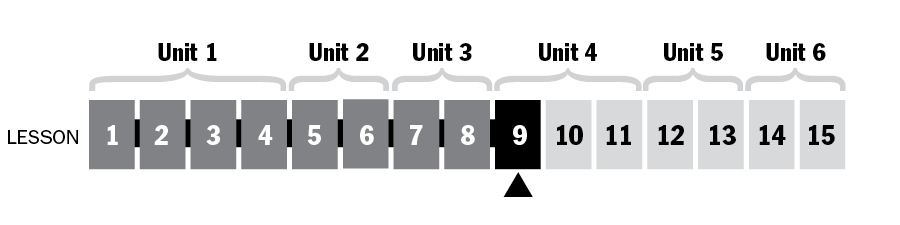
AOIT Web Design

Lesson 9

Using Development Tools and Techniques

In this lesson, students learn the importance of creating a web page template prior to building pages for a website. They also learn techniques for creating such a template. They then create a sample template from an existing layout and create several child pages from the template. Finally, they set up the project infrastructure for their culminating project, including folder structure, layout, external CSS file, template, child pages, and library items.

This lesson is expected to take 6 class periods.



Lesson Framework

Learning Objectives

Each student will:

* Develop an effective infrastructure for a website, including a layout page, a template based on the layout page, child pages, and library items
* Describe a correct folder structure and naming convention protocol as well as effective file organization for a website

Academic Standards

The relevant Common Core State Standards are too extensive to list here but are an important basis for this lesson. For details, please refer to the separate document “Correlations to the Common Core Standards” (available in the Course Planning Tools section of the course materials).

* Use product or service design processes and guidelines to produce a quality information technology (IT) product or service (Common Career Technical Core 2012, IT 2)
* Demonstrate the use of cross-functional teams in achieving IT project goals (Common Career Technical Core 2012, IT 3)
* Write product specifications that define the scope of work aligned to customer requirements (Common Career Technical Core 2012, IT-WD 3)
* Demonstrate the effective use of tools for digital communication production, development and project management (Common Career Technical Core 2012, IT-WD 4)
* Use models and simulations to explore complex systems and issues (ISTE NETS for Students 2007, 1c)
* Contribute to project teams to produce original works or solve problems (ISTE NETS for Students 2007, 2d)

Assessment

|  |  |
| --- | --- |
| Assessment Product | Means of Assessment |
| Culminating project groups complete a file management structure (Student Resource 9.7) | Assessment Criteria: File Management Structure (Teacher Resource 9.2) |
| Culminating project groups complete and refine a website infrastructure for their client’s website (Student Resource 9.8) | Rubric: Web Page Infrastructure (Teacher Resource 9.3) |

Prerequisites

* Ability to use a computer operating system and file folder structure
* A working vocabulary of fundamental website-related terms
* Knowledge of the basic purpose and functions of an HTML editor
* A completed wireframe for a website to be developed
* Working knowledge of basic HTML code
* Working knowledge of how to create and modify web pages using Dreamweaver
* Working knowledge of Dreamweaver layouts
* Basic knowledge of CSS coding

Instructional Materials

Teacher Resources

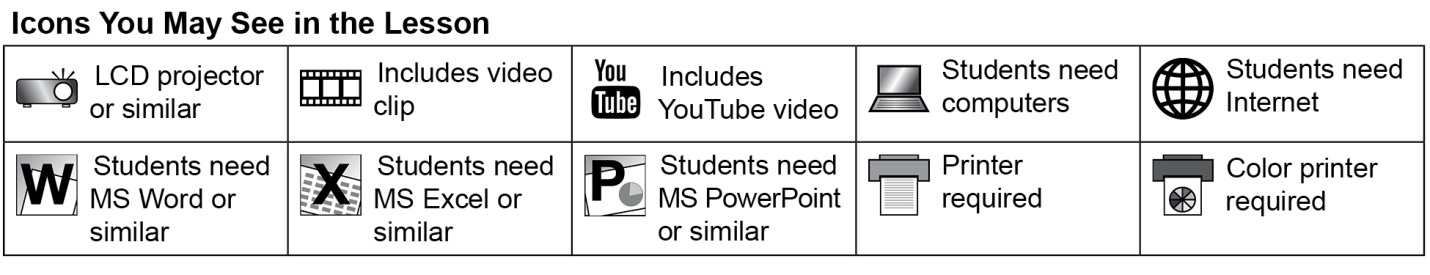
* Teacher Resource 9.1, Prototype: Sample Site Final with about\_me.html, about\_meOLD.html, index.html, indexOLD.html, mylayout.html, mytemplate.dwt, mystyles.css, tips\_techniques.html, tips\_techniquesOLD.html, vertical-nav.lbi, and various images (separate ZIP file)
* Teacher Resource 9.2, Assessment Criteria: File Management Structure
* Teacher Resource 9.3, Rubric: Web Page Infrastructure
* Teacher Resource 9.4, Key Vocabulary: Using Development Tools and Techniques

Student Resources

* Student Resource 9.1, Guide: Template-Designed Web Pages
* Student Resource 9.2, Tutorial: Preparing a Layout for a Template
* Student Resource 9.3, Tutorial: Creating a Template
* Student Resource 9.4, Tutorial: Creating Child Pages
* Student Resource 9.5, Tutorial: Updating a Template
* Student Resource 9.6, Tutorial: Creating Library Items
* Student Resource 9.7, File Management Structure: Organizing Your Website’s Files
* Student Resource 9.8, Assignment Sheet: Culminating Project Infrastructure

Equipment and Supplies

* Blackboard, whiteboard, or flip chart
* Computer for each student or student pair, with Dreamweaver installed on each machine
* LCD projector and computer
* A color chart of web-appropriate colors and their codes
* Sticky notes



Lesson Steps

| Step | Min. | Activity |
| --- | --- | --- |
|  |  | class period 1 |
| 1 | 20 | Think, Pair, Share: Templates  This activity introduces students to the concept of web page templates and how they can be used to expedite the development of their client’s website. It also focuses on the following college and career skill:  Developing awareness of one’s own abilities and performance  Refer students to Student Resource 9.1, Guide: Template-Designed Web Pages, and have them look at the three sample template-designed web pages. Ask them to quietly think about which sections of the pages are common regions and which are unique regions. Make sure students understand what you mean by a *common region* (a part of the page containing information that is common to more than one page) and a *unique region* (a part of the page containing information that is specific to a single page). Point out to students that common regions can be vertical or horizontal.  After students make their deductions, pair the students and instruct them to use the student resource to further discuss which sections fall into each category. They may change their minds in order to come to an agreement about which sections are common and which are unique.  Introduce the concept of *locked* and *unlocked* (*editable*) areas, and discuss why common regions of a template should be locked and unique regions should be unlocked, or editable.  Finally, ask each pair to share their deductions with the class. Point out the two types of regions on the template-designed web pages and lead a brief class discussion of the benefits of using templates (e.g., consistent look for the site, ease and efficiency in creating pages, consistent navigation for the website user).  Advise students that they will get practice creating templates in this lesson. |
| 2 | 30 | Tutorial: Preparing a Layout to Be Converted to a Template  In this activity, students make a few final changes to the layout of their sample site so that it will be a more effective template when they convert it in the following activity.  Explain to students that in this activity, they will be making final revisions to the layout of their sample site before converting it to a template. Refer students to Student Resource 9.2, Tutorial: Preparing a Layout for a Template. Ask students to look through the tutorial and make a list of the changes they will be making to their layout, and then ask students to share what they found with the class. Their lists should include:  Putting placeholder text in the content area  Replacing the footer text with a copyright notice  Adding an image and caption placeholder to the sidebar  Answer any questions students have about the tutorial before they begin work. Circulate as students are working to check their progress and answer questions that come up.  When students have completed their layout, ask them to share it with a partner to check for accuracy. Help students resolve any issues that arise.  Next, write the following list of regions on their layout on the board:  Header  Content  Sidebar  Footer  Ask students to work with a partner and determine which of these areas they think should be editable and which should be locked. Their answers may vary, depending on how they think each area will be used. Inform students that when they create the template for their sample site, they will create regions that are locked or editable as shown in the following table:   |  |  |  | | --- | --- | --- | | Region | Locked or  Editable? | Reason | | Header | Locked | Every page has the same logo and top menu structure. | | Sidebar | Editable | The links in the side navigation menu may differ from one page to another, and the images and their captions may also be unique. | | Content | Editable | The content for each page is unique. | | Footer | Locked | The copyright is the same for the entire site. |   At the end of the activity, ask students to share what they learned during this tutorial that they think will be helpful in their culminating project. Point out that spending time getting everything right in the layout of a website makes all of the subsequent steps of creating a template easier and less error prone. |
|  |  | CLASS PERIOD 2 |
| 3 | 25 | Tutorial: Creating a Template from an Existing Layout  In this activity, students create a Dreamweaver template from the layout they prepared in the previous class period.  Refer students to Student Resource 9.3, Tutorial: Creating a Template, and briefly go through it with the class. Ask for volunteers to remind the class which parts of their template will be editable and which parts will be locked.  Answer any questions students have about the tutorial, and then ask students to open Dreamweaver and begin work. As students work, circulate to check their progress and answer questions that come up.  At the end of the activity, ask students to display their finished layout in Design view on their screen. Ask students to work in pairs and test each other’s designs, and to report any problems they find. Point out that this is both a testing and a brainstorming opportunity. Tell them to take special note of information and ideas they could use for the template of their culminating project website. |
| 4 | 25 | Tutorial: Creating Child Pages  In this activity, students create child pages for their sample site, modeled on the template they created in the previous activity. This activity also focuses on the following college and career skills:  Utilizing time efficiently when managing complex tasks  Thinking critically and systemically to solve difficult problems  To begin this activity, ask students to think about the following question:  What is a child page?  Have students share their ideas with the class. If necessary, clarify that a child page is a page of a website that is created using the site’s template. The child page inherits all of the locked regions of the template.  Refer students to Student Resource 9.4, Tutorial: Creating Child Pages. Explain that they will be converting pages from their sample site to child pages of the template. Briefly go through Student Resource 9.4 with the class, answering any questions they have.  Direct students to open Dreamweaver and begin work. As students work, circulate to check their progress and answer questions that come up.  Inform students that they should complete their child pages during this class period and have them ready for peer review at the beginning of the next class period. If necessary, help students arrange to complete their pages outside of class time. |
|  |  | CLASS PERIOD 3 |
| 5 | 10 | Peer Review: Sample Website Child Pages  In this activity, students review and test each other’s child pages. They also discuss and write down tips and techniques they have learned in creating the child pages.  Ask students to display their finished child pages in Design view on their screen, and then have students pair up to check each other’s pages for accuracy and completeness. In particular, students should check for the following:  Does each page display all of the locked regions correctly?  Can the editable regions on each page be edited?  Instruct students to help each other fix any parts of the pages that are not working correctly. If necessary, help pairs resolve any issues they cannot resolve on their own.  Point out to students that when they work on their culminating project site, they will need to use the skills they have learned here to create the child pages. Instruct them to write in their notebook any information and ideas about child pages they think might be useful when they are creating child pages for their client project. |
| 6 | 20 | Tutorial: Updating a Template  In this activity, students learn how to make updates to a template.  Refer students to Student Resource 9.5, Tutorial: Updating a Template. Briefly go through the student resource with the class, answering any questions they have.  Direct students to open Dreamweaver and follow the instructions in Student Resource 9.5 to update their sample site template. As students work, circulate around the class to check their progress and answer questions that come up.  As the activity ends, tell students that the set of Dreamweaver tutorials for their sample site ends with the next activity. Tell them to be thinking of any Dreamweaver questions they still have—particularly questions or issues that they think will slow down or prevent progress on their template for their culminating project. Encourage them to get answers from their peers, if possible, but to bring their questions to you if necessary. |
| 7 | 20 | Tutorial: Creating Library Items  In this activity, students learn how to create and use Dreamweaver library items.  Explain to students that Dreamweaver has a feature that allows you to create a library for your website. Ask students to suggest what they think might be stored in this type of library. Tell them to think about other types of libraries they know about and to base their suggestions on what is stored in those libraries.  Help students understand that in Dreamweaver, libraries store items that are frequently used on a website, such as a section of text, a table, a form, an image, a navigation bar, or even a Java applet. For example, if a company wants a slogan on every page of its website, the slogan can be stored as a library item. If the company changes the slogan, they only need to change the library item, and the new slogan will appear on all pages of the website.  Tell students that in this activity, they will be creating a library item for the navigation bar, which appears on many pages of their sample site. In the future, if they want to update the navigation bar, they will only need to update the library item, and the updated navigation bar will display on all pages.  Refer students to Student Resource 9.6, Tutorial: Creating Library Items. Briefly go through the student resource with the class, answering any questions.  Direct students to open Dreamweaver and begin work on Student Resource 9.6. As students work, circulate to check their progress and answer questions that come up.  At the end of the activity, ask students to open all of their HTML pages, their template page, and their library, and to display their home page on top. Instruct students to check each other’s work in pairs, and answer any questions students have about the work they have done so far in Dreamweaver. To gauge student understanding, you may want to mark these items for credit/no credit.  Point out to students that the work they have done on their sample site gives them a solid background that they can build on when they create their culminating project site. |
|  |  | CLASS PERIOD 4 |
| 8 | 25 | Culminating Project Work: Creating a Folder Structure  In this activity, students design the folder structure for their culminating project and establish naming and location conventions for the files.  Direct students to sit with their culminating project teams. Advise students that during the next three class periods, they will be working independently on creating the infrastructure for their client’s site. First they will design the folder structure for their site, and then they will create the layout page, the template, and the child pages for their site. Remind students to use their sample site and the appropriate student resources they have already completed as reference material as they create their client site infrastructure.  Refer students to Student Resource 9.7, File Management Structure: Organizing Your Website’s Files. Briefly go through the student resource with the class, answering any general questions they have. Make sure all groups understand the best practices for naming files and folders. You will need to tell students where they should store the files for their project site (on a flash drive, network location, etc.). Answer any questions students have about how their work will be assessed.  Encourage students to split up the work among team members and then check each other’s work. For example, some students could work on developing naming conventions and assigning a file name to each web page while other students work on creating the folder structure.  When students are finished, instruct them to exchange their work with another group to check that everything about the folder structure and file names is correct. Point out to students that in this type of detail work, it’s always worthwhile to have someone else check your work, even in professional settings. Answer any questions that arise from the peer review, and give students a few minutes to make any necessary corrections before submitting their folder structure for assessment. Use Teacher Resource 9.2, Assessment Criteria: File Management Structure, to assess your students’ work.  Point out to students that as they create the infrastructure of their website in the next activities, they should make a scrupulous effort to adhere to the design of their folder structure. |
| 9 | 25 | Culminating Project Work: Creating a Site Infrastructure  In this activity, students create the infrastructure they will use for their culminating project website. This includes creating a layout page, converting the layout page to a template, creating child pages, and creating at least one library item.  Direct students to sit with their culminating project groups and refer them to Student Resource 9.8, Assignment Sheet: Culminating Project Infrastructure. Explain that in this activity, they will be creating the infrastructure for their culminating project site. Point out that they have already gone through each step of creating an infrastructure for their sample site, and they can use everything that they learned while working on their sample site to create the infrastructure for their client’s site.  Ask students to look at the first four steps on the assignment sheet in their groups, and to make a list of two things they think will be easy and two things they think will be challenging when creating the infrastructure. Ask groups to share their ideas with the class, and answer any questions that arise. Next, give each student a copy of the rubric that will be used to assess their work: Teacher Resource 9.3, Rubric: Web Page Infrastructure. Give students time to read through the rubric, and answer any questions they have about how their work will be assessed.  Next, instruct students to meet as a team to agree on the work to be done on their client’s site, and to agree on how they will accomplish the work as a team. Point out that the steps are sequential, but group members can be prepping steps and testing completed steps so that they can move smoothly through the procedure. For each step, instruct students to appoint one person to take the lead and one person to test. Tell them they have the rest of this class period and then two additional class periods to create and test their infrastructure.  At the end of the class period, ask the teams to report to the class on their progress. Ask for volunteers to supply answers to any questions, solutions to problems, and encouragement.  Point out that working as a team to complete a project is a very important professional skill, and they can bring up their experience working as a team during interviews for internships and jobs. |
|  |  | CLASS PERIOD 5 |
| 10 | 50 | Culminating Project Work: Creating a Site Infrastructure (Continued)  In this activity, students continue working on the infrastructure for their culminating project site.  Direct students to sit with their culminating project teams and get right to work on their infrastructure. Ask them to begin by making sure each team member has an assigned task, and tell them to go around their group and have everyone tell what they are working on during this class period. Help any groups that are having difficulty dividing up the work. Remind students to look at the rubric and make sure the work they are doing meets the exemplary criteria in the rubric.  As students work, circulate to check that all groups are on track and answer questions that come up.  At the end of the class period, ask groups to report on their progress. Ask for volunteers to supply answers to any questions, solutions to problems, and encouragement. Tell students that they should reserve most of the next class period to test their work and make any necessary revisions. |
|  |  | CLASS PERIOD 6 |
| 11 | 50 | Culminating Project Work: Creating a Site Infrastructure (Continued)  In this activity, students complete the infrastructure for their culminating project site, test the completed site, and make any necessary revisions.  Direct students to sit with their culminating project teams and get right to work completing any unfinished parts of their infrastructure. Point out that some members can begin testing while others complete remaining tasks on the infrastructure. Go over the list of items that should be tested on Student Resource 9.8, Assignment Sheet: Culminating Project Infrastructure, and answer any questions students have about how to conduct their testing. Tell students that all group members should run through the testing procedure to double-check their site. Instruct them to correct any errors that they find, and to prepare to submit their site infrastructure for assessment.  When about 10 minutes remain, ask students to display their site’s home page on their computer, and then allow them to do a gallery walk and visit each other’s sites. Instruct students to use sticky notes to point out:  What makes the site attractive?  What could be improved?  Answer any questions that arise based on the gallery walk, and tell students they can make any necessary corrections to their site infrastructure for homework before submitting their site for assessment. Assess the sites using Teacher Resource 9.3, Rubric: Web Page Infrastructure.  Take a few minutes at the end of the class period to congratulate the students on the progress they have made so far as web designers. Not only have they learned many important web design principles, but they have also gained a great deal of skill in learning Dreamweaver, a tool used by many web design professionals. With their project infrastructure complete, they will be ready in the next lesson to begin collecting and adding the content that will make their client’s site informative and useful to its users. |

Extensions

Content Enrichment

* To further comprehension of website file folder structure, have students explore the website of your school or that of a community organization. With paper and pencil, students should list all the files used on that site and organize them into a sample folder structure.
* To build appreciation for the effect of templates on website design, provide students the list of poorly designed websites from Lesson 8. Ask them to explore and find a site that obviously does not use templates and therefore has compromised visual design, consistency, or functionality. Students should demonstrate their findings to the class.

STEM Integration

* Science: To extend student thinking on the concept of templates and how they are the basis for new pages, have students use the Internet to research the term *DNA*. Then ask students to write a short essay discussing how DNA is actually a genetic template that sets the sequence for new strands.

Additional Cross-Curricular Ideas

* Visual Arts: To enhance visual thinking and understanding of the concept of templates, ask students to draw a stencil design in a template material such as matte board or cardboard, and then carefully cut out the design to create the physical negative. Students then use the stencil along with markers or paint to make three to five different designs based on that template.
* English Language Arts: To enhance organizational thinking and create a physical representation of a website file structure, instruct students to use office supplies to build a file folder for their site. Hanging folders represent folders, manila folders represent subfolders, paper represents sheets of content, and photos or magazine cutouts represent graphics. Each element should be labeled properly as part of the naming convention.