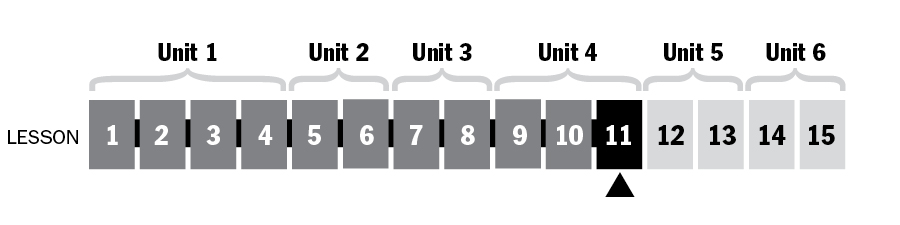
AOIT Web Design

Lesson 11

Preparing a Website for Launch

This lesson enables students to properly evaluate a website for usability and accessibility issues. They also learn the basic principles and processes involved in user testing, as they create and implement a user testing plan for their culminating project website. Students also gain understanding of how to integrate testing feedback into their site in preparation for a final site review by the client.

This lesson is expected to take 6 class periods.



Lesson Framework

Learning Objectives

Each student will:

* Evaluate a website for basic usability and accessibility issues\*
* List the steps that are necessary to determine when a website is ready to launch
* Develop a user testing plan
* Demonstrate the ability to organize and execute a user test of a website

\*This is one of the 16 key learning objectives assessed by the NAFTrack Certification end-of-course exam for this course.

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).

* Describe quality assurance practices and methods employed in producing and providing quality IT products and services (Common Career Technical Core 2012, IT 9)
* Implement quality assurance processes to deliver quality digital communication products and services (Common Career Technical Core 2012, IT-WD 8)
* Understand how content is created, located and evaluated on the World Wide Web (IC3 GS4 2012, Living Online)
* Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media (ISTE NETS for Students 2007, 2a)
* Collect and analyze data to identify solutions and/or make informed decisions (ISTE NETS for Students 2007, 4c)

Assessment

|  |  |
| --- | --- |
| Assessment Product | Means of Assessment |
| Usability and accessibility test log (Student Resource 11.2) | Assessment Criteria: Usability and Accessibility Test (Teacher Resource 11.2) |
| User testing plan (Student Resource 11.4) | Assessment Criteria: User Testing Plan (Teacher Resource 11.3) |

Prerequisites

* Ability to use a web browser and independently locate specific websites
* A working vocabulary of fundamental website-related terms
* Ability to compose, attach files to, and send emails
* Ability to observe and take notes on observations
* Ability to use Dreamweaver to create a website
* Basic HTML coding skills

Instructional Materials

Teacher Resources

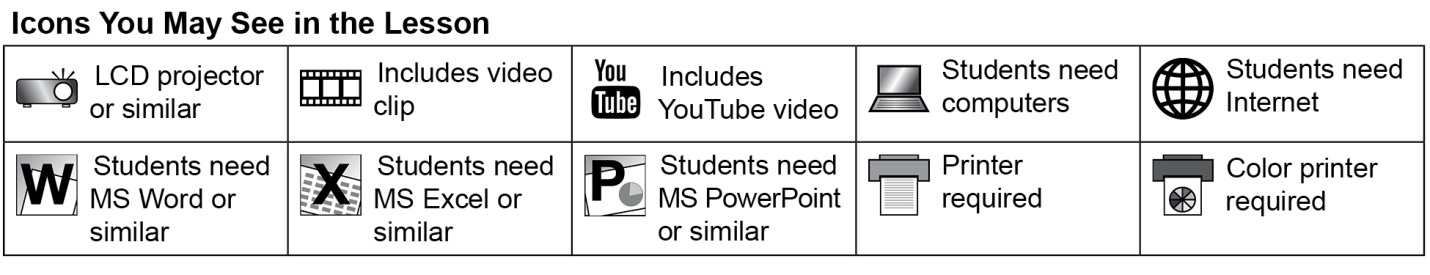
* Teacher Resource 11.1, Guide: Usability and Accessibility
* Teacher Resource 11.2, Assessment Criteria: Usability and Accessibility Test
* Teacher Resource 11.3, Assessment Criteria: User Testing Plan
* Teacher Resource 11.4, Rubric: Client Website
* Teacher Resource 11.5, Key Vocabulary: Preparing a Website for Launch

Student Resources

* Student Resource 11.1, Characteristics Chart: Usability and Accessibility
* Student Resource 11.2, Test Log: Usability and Accessibility
* Student Resource 11.3, Reading: User Testing
* Student Resource 11.4, Guide: User Testing Plan

Equipment and Supplies

* Blackboard, whiteboard, or flip chart
* Computer access for each student or student pair, with Dreamweaver, an image editor, email access, and Internet connectivity on each machine
* Chart paper
* LCD projector and computer



Lesson Steps

| Step | Min. | Activity |
| --- | --- | --- |
|  |  | class period 1 |
| 1 | 30 | Comparison: Usability and Accessibility  This springboard activity introduces students to the concepts and characteristics of usability and accessibility.  Begin by using an LCD projector to project a “bad” site. Find a site that is poorly designed using a link such as <https://thomasdigital.com/bad-websites>. (Choose the site you want to look at before you begin this activity.) Ask students to think about specific aspects of the site that make it difficult for visitors to use. Write their ideas in a single list on the board. After 8–12 items are on the board, explain that these items can be grouped into two different categories: usability and accessibility. Define *usability* and *accessibility* as follows:  **Usability** is a component of website design that ensures users can find the information they want and use the features they need efficiently and easily.  **Accessibility** is a component of website design that ensures all users can make use of the website features regardless of disabilities such as vision, mobility, auditory, or cognitive impairments.  Use Teacher Resource 11.1, Guide: Usability and Accessibility, as a guide as you have students identify usability and accessibility issues.  Work with the students to put a *U* or an *A* next to each item identifying which category it belongs to, so that they begin to understand how to categorize website characteristics in terms of usability and accessibility.  Next, refer students to Student Resource 11.1, Characteristics Chart: Usability and Accessibility, and have them work in pairs to come up with website characteristics that exemplify good usability and accessibility.  Once each pair has thought of four to eight characteristics for each category, have the whole class report out. Write correct answers on chart paper, one chart for each category. As you record the students’ answers, explain why each characteristic they suggest fits into the category. Post the charts on the wall so that students can use them later to inform their website usability and accessibility testing activities.  Tell students that they will use what they have learned to look at usability and accessibility issues in their clients’ websites. |
| 2 | 20 | Culminating Project Work: Usability and Accessibility Testing  In this activity, students organize and plan their website usability testing.  To begin, ask students to read through the testing tasks in the first column of Student Resource 11.2, Test Log: Usability and Accessibility. Explain to students that this is the document they will use to do the actual testing for their client’s website.  Next, ask students to work in their culminating project groups to brainstorm how each task should be tested and then record their ideas in the second column.  Once students have filled in as much of the second column as they can, ask each group to share its answers with the class, and complete or correct any missing information. If a group’s second column isn’t completely filled out, instruct students to finish this for homework.  Point out to students that having a detailed plan of how they will test usability and accessibility is an important piece of information they can share with their client. Encourage them to approach this task with a professional mindset. |
|  |  | CLASS PERIOD 2 |
| 3 | 35 | Guided Practice: Usability and Accessibility Testing  This activity demonstrates the usability and accessibility testing process.  Using an LCD projector, lead students through a demonstration of how to first create a backup of their client website. If possible, back up to a school server; if not, place an additional copy on the local drive or on a flash drive. One version of the site will be used for debugging and making modifications; the other will remain a backup. Explain to students that only one member of the group should make changes at a time, and when those changes are complete, they should back up the site again, labeled with the current date.  Discuss, and model on screen if necessary, each testing task on Student Resource 11.2, Test Log: Usability and Accessibility. Instruct students to take notes and add any additional information to the second column of their worksheet.  To prepare the accessibility testing item, introduce the Section 508 Web Accessibility guidelines (you can access them from <http://en.wikipedia.org/wiki/Web_accessibility>or<http://www.w3.org/TR/WCAG20/>). Explain to students that while accessibility is an important concept to understand, their current web development skill level may allow them to adhere to only a small number of the guidelines. These are listed on their worksheet.  Next, demonstrate accessibility to students by going to<http://www.tawdis.net/ingles.html?lang=en> and running a test for <http://www.bbc.co.uk/sport/0/> or another poorly designed site. Discuss some of the results as a class and ask students to share whether they think this type of testing would be beneficial for their site. Answer any questions students have about usability and accessibility before they begin their own testing in the next activity. |
| 4 | 15 | Culminating Project Work: Usability and Accessibility Testing  This activity guides student understanding of usability and accessibility as the students complete specific testing of a website. It also focuses on the following college and career skills:  Demonstrating teamwork and collaboration  Utilizing time efficiently when managing complex tasks  Assemble culminating project groups and ask them to begin by first backing up their website as demonstrated in the previous activity.  Next, using their Student Resource 11.2, Test Log: Usability and Accessibility, have groups assign their members the different items to test and fix. Explain that each student needs to do a thorough test of the client’s website per that student’s assigned tasks, make fixes and modifications to the site using Dreamweaver, back up the work, and then complete the remaining columns on the checklist.  Before students begin working, review the concept of version control. Write the term on the board:  Version control  Then ask students what they think will happen if two students are making fixes to the same file at the same time. Ask students what they think *version control* means, and ask them to give ideas about how they can implement version control when the whole team is making fixes to their website. Make sure that all students understand that only one person can work on a file at a time.  Alternatively, to reduce the problem of version control, tell groups they can assign one or two group members the task of making site modifications while the other members complete the testing tasks, and then rotate the group members so that everyone gets experience with each part of the process.  Review the assessment criteria for the usability and accessibility test before students begin work, and answer any questions.  Tell students that they will have time to continue work on this activity in the next class period, but encourage them to continue it as homework. If necessary, help them find solutions for computer access, as they will not have enough time in class. |
|  |  | CLASS PERIOD 3 |
| 5 | 50 | Culminating Project Work: Usability and Accessibility Testing (Continued)  Have project groups continue their usability and accessibility testing tasks as assigned in the last class period, making fixes to the site, backing up, and completing each column in their checklist.  Assist students in resolving all site issues after their testing and be sure students are making fixes to their site one student at a time, so that there are no version control issues. Have each group turn in their completed worksheet, and assess the work using Teacher Resource 11.2, Assessment Criteria: Usability and Accessibility Test.  Congratulate students on the improved usability and accessibility of their sites. |
|  |  | CLASS PERIOD 4 |
| 6 | 10 | K-W-L: User Testing  This brief activity introduces the concept of user testing to students.  Explain to students that user testing is the process of having outside users test their website. Create a three-column K-W-L chart on the board. Ask students what they know about user testing and fill in the “K” column on the chart with their responses. Then ask students what they want to know about user testing and fill in the “W” column. (See *The NAF Learning Handbook* for more details on this instructional strategy.)  This activity gives students the framework they need to read about the process of user testing and complete the “L” column in the next activity. |
| 7 | 15 | Reading: Creation of a User Testing Plan  This activity helps students gain a deeper understanding of the process and steps involved in conducting user testing.  Have students read Student Resource 11.3, Reading: User Testing. After they complete the reading, gather students into culminating project groups to discuss what they learned about user testing. Ask one member of each group to report on one key item the group learned, and then record each group’s response in the “L” column of the K-W-L chart on the board. Be sure that all key items are included and are accurate on the K-W-L chart, so that students are prepared to create their own user testing plan. |
| 8 | 25 | Culminating Project Work: Creation of a User Testing Plan  This activity provides students with hands-on practice in creating a user testing plan for their client website.  Instruct groups to prepare a user testing plan using the guidelines in Student Resource 11.4, Guide: User Testing Plan, along with their understanding of the user testing process from the last few activities. Remind students that each client site has a different purpose and different features, so a testing plan should be specific to the needs of their site and their users. Review with students the criteria for a good user testing plan (these are listed in Student Resource 11.4) and discuss how their plan will be assessed.  If possible, encourage students to prepare to include NAF academy advisory board members as participants in their user testing. Point out to students that professional usability studies do not allow the client to test the site. Clients are typically not the final users of their site, and more often than not, they are too close to their product and their business to be representative of the typical user’s mindset when approaching their site. However, for this project, you may want to give students the option of including their clients as usability testers.  Since the client websites are not yet published to the Internet, it may be challenging for students to have external reviewers test their site. If clients or board members can come into the school, or if there is technical means of having them review the websites at a distance, then it is recommended that student groups collect this feedback as part of the user testing process.  Instruct students to finish their user testing plan for homework and submit it at the beginning of the next class period. |
|  |  | CLASS PERIOD 5 |
| 9 | 10 | Homework Review: User Testing Plan  Ask each group to exchange their user testing plan with another group and review the other group’s plan. Ask them to identify what they think is good in the plan, if anything is missing, and any questions they may have. Clear up any questions.  Tell students that they will need to use their test plan to conduct user testing in the next activity, and then they will submit it for assessment. |
| 10 | 40 | Culminating Project Work: Conducting User Testing  In this step, students learn the process of conducting, observing, and documenting a website user test. This activity focuses on the following college and career skill:  Demonstrating adaptability and flexibility  If possible, provide students with some basic feedback on their test plans before they begin their tests.  Pair up culminating project groups, labeling one Group A and the other Group B. Explain that each group will be testing their partner group’s website.  **Note**: If there are visitors who are participating in the test (clients or NAF academy advisory board members), integrate them in this testing procedure.  Instruct students to provide each other with their user testing plan and/or any questionnaires they have developed. First, have one student from Group A try out Group B’s site while two members from Group B observe and take notes per their testing plan, asking appropriate questions and requesting the user to perform certain tasks on the site. Remind the Group B observers to stay neutral and not to tell or suggest *how* to perform the tasks, since they are testing Group A’s ability to perform the tasks without assistance.  Repeat this process as many times as there is time for or until each Group A member has tried the site, and rotate the Group B observers so that all students experience the testing process. Once this testing is completed, switch the roles of Groups A and B and complete the process again, so that each group has sufficient user testing on its site.  When both groups have completed their testing, have groups reconvene and make a list in their notebook of what they need to modify on their website as a result of the user feedback.  If necessary, give students the opportunity to revise their test plans for homework before handing them in. Assess each group’s plan with Teacher Resource 11.3, Assessment Criteria: User Testing Plan.  To conclude this activity, ask for volunteers to comment on how user testing influenced the usability of their website. Point out to students that all professional websites go through extensive user testing. |
|  |  | CLASS PERIOD 6 |
| 11 | 40 | Culminating Project Work: Modifying and Retesting the Site with User Testing Feedback  This step develops student ability in working with users, building technical skills, and understanding web usability principles.  Tell students that today they will be working to resolve the issues that were uncovered during the user testing of their website. Have students meet in their culminating project groups and take out the list they made in their notebook of items they need to modify on their website as a result of the user feedback. Let each group work together to make any fixes and modifications to its site. Remind students to pay attention to version control. Once all changes have been made, ask each group to use its completed Student Resource 11.2, Test Log: Usability and Accessibility, to conduct another usability test within their group.  Rotate the testing and modification assignments so that each group member experiences a variety of tasks, and remind students to use proper backup techniques.  If necessary, instruct groups to complete any remaining modifications or tests for homework. Inform them that they need to be ready to launch their site in the next lesson. |
| 12 | 10 | Culminating Project Work: Evaluating Websites against a Rubric  In this activity, students make a preliminary assessment of their website using the rubric that will be used to evaluate their final product.  Have students gather in their culminating project groups, and give each student a copy of Teacher Resource 11.4, Rubric: Client Website. Go over each section of the rubric as a class, and ask students to think about how their project aligns with the criteria. Give groups a few minutes to discuss areas of their website that they still need to work on in order to meet the criteria in the Exemplary or Solid categories.  Inform students that you will be using this rubric to make a preliminary evaluation of their project. They will have time to make changes based on your feedback before presenting their site at the Website Fair.  Explain that in the next lesson, they will upload their site so that you can view it live, and at that time you will be making a preliminary evaluation. Groups should plan to make any necessary improvements before they upload their site in the next lesson. (They have about three class periods before they upload their sites.) Answer any questions students have about this, and allow groups to use any remaining time to organize any improvements they need to make. You may want to suggest that each group member take the lead on one or two categories in the rubric so that they are ready to launch an exemplary or solid website in the next lesson. |

Extensions

Content Enrichment

* To further student understanding of how website design can affect a user’s experience, especially those with a visual impairment, ask students to put on a pair of dark sunglasses or a friend’s prescription eyeglasses. Then students should review a number of websites and consider the importance of design elements such as high-contrast fonts, background color, and font size. Have students write a brief essay on ways that visual design can improve the user experience for people with visual impairments.
* To build more skills in the user testing process, ask students to write a testing plan for an offline product such as a digital camera or a cell phone. Using the same techniques learned in the lesson, students formulate the test plan, implement the testing with peers, and then write a brief report on their results and how they would modify the product to improve user experience.
* To further student understanding and skill in version control and backup techniques, demonstrate—if possible—the check-in and check-out features of the software tool(s) being used in class. Ask student groups to write up a plan for how they will make ongoing modifications to the site in a controlled manner.
* Ask students to research how browsing websites on smartphones and tablets affects usability and accessibility. Tell students to describe how they may have to change their testing plan to accommodate different platforms.

STEM Integration

* Math: To build understanding of how questionnaires can be extremely valuable in the user testing process, ask students to create an offline or online survey as in the English language arts activity below. This time, have students write 10–15 empirical questions. Upon completion of the testing and user responses, students should create a mathematical report showing the total users and the mean and median response for each question, and then create a table or a chart to depict the numerical results of their testing.

Additional Cross-Curricular Ideas

* English Language Arts: To increase knowledge of the user testing process, instruct students on how to use an online tool such as [www.surveymonkey.com](http://www.surveymonkey.com) or Google Forms to create an online survey for their user test participants. Especially if the groups did not use a questionnaire, have students write clear, concise questions for users to answer upon completion of the test. Questions should address general opinions about the site as well as specific tasks that the users may have been asked to complete. Upon completion of the testing, tell students to utilize the online survey tool to compile results and then write a summary report to provide to their client.
* Social Sciences (Psychology): To further understanding of how people use the web and of the user testing process, have students create a predictive report on how five different user types will experience their website (for example, their tech-savvy younger sibling, their Luddite uncle, their programmer aunt, their texting-crazy best friend, and their nervous-around-technology parent). Instruct students to then conduct a user test with each person profiled and to write another report comparing their predictions with the actual results.