



Course Developer: Yuri Tricys
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Part A: Workshop Plan

Workshop Profile

Languages Used:

- JavaScript
- HTML
- CSS

Key Features of the Form:

- Inputs for information, like first and last name, phone number, and email
- A query section for text input, with a maximum number of words
- Submit button
- CAPTCHA (using Cloudflare)
- Client-side verification of inputs with JavaScript

HTML Tags to Use:

- `<form>`
- `<input>`
- `<label>`
- `<button>`
- `<textarea>`
- `<div>`
- `<script>`

Location [in a classroom at the school]

Format

- Workshop

Length of Workshop

3 hrs, the workshop may be completed in one block of 3 hrs, in 2 blocks of 1.5 hours each (with take-home time), or in blocks of 1 hr each.

Prior Knowledge

Students will be provided with a full profile of the workshop several weeks in advance.

They will have previously registered with Cloudflare and previewed and toggled the Turnstile service in prior take home assignments. They will possess the theoretical knowledge to write form submission and verification JavaScript, having completed the JavaScript portion of the course, and been provided with resources on the topic, though they will not have implemented it practically.

Additionally, students will have registered with Zapier to facilitate the relay of form submissions to their student email addresses. Finally, students will be familiar with the HTML components needed to build the form.

Groups

Students will receive prior to the class a list of groups with names of students assigned to groups. Group size will vary based on class size, but the target will be 2 or 3 students per group.

Learning Outcome Alignment

This lesson fulfills the following outcome from the "Skills/Practical/Hands on" section of the course profile

Create an HTML contact form from scratch (connected to email using a free service such as Zapier, or Google forms)

Expectations

While it will be unlikely any group will complete the objectives provided in the following BOPPPS outline entirely, the materials they will be provided with ahead of the class will make it just possible for a very organized and experienced group to complete the objective.

The point of the workshop is to expose students to working in a group.

Perhaps they will come up with a unique design, or assign specific tasks to specific group members.

Students will leave with valuable knowledge they can use to complete their Capstone project.

Workshop Plan

WORKSHOP PLAN - Web Development Form Workshop			Total time for lesson: 3 hours
<p>Lesson Objective(s):</p> <ul style="list-style-type: none"> • Participants will demonstrate understanding of basic form elements by constructing a simple form. • Participants will be tasked with styling the form • Participants will add interactivity using JavaScript [form submission via a button] • Participants will add a CAPTCHA implementation for form security. • Participants will add JavaScript input validation 			
LESSON/WORKSHOP ELEMENTS			
<p>Bridge-in</p> <p>Imagine the following scenario: you walk into the office on a typical Tuesday morning, ready to tackle your usual tasks. Just as you settle down with your morning coffee, your manager rushes over to your desk with an urgent request.</p>	<p>Listen to introductory scenario</p> <p>Form groups as assigned</p> <p>Participate in discussion</p>	<ul style="list-style-type: none"> • Projector • Group assignment document 	<p>10 min</p>

<p>"Team," she begins, addressing you and a few colleagues gathered around. "We have a new client, and they need us to create an online registration form. But here's the catch: they insist on integrating Zapier and Cloudflare. And we weren't given any specifics on how they want it set up."</p> <p>As she pauses to let the information sink in, she adds, "To make things more interesting, they expect it by end-of-day. We don't have time to design or prototype. This is going to be a true test of your on-the-spot problem-solving skills."</p> <p>She glances around the group with an encouraging smile. "Think of it as a challenge—but a fun one! Let's break into teams, brainstorm, and come up with a creative solution. Use whatever tools and resources you need, and remember, collaboration is key."</p> <p>Today you're going to be assigned to groups to tackle this scenario. I hope you're ready to dive into this fast-paced web development task! This is the perfect chance to flex your skills and think outside the box, or to work efficiently as a team.</p>			
<p>Pre-assessment...</p> <p>Here are the handouts for each group again. This is the same as the handout you were given two weeks ago.</p> <p>Here is the URL to clone the working repository that contains partially completed code.</p>	<p>Review handouts</p> <p>Clone the provided repository</p> <p>Review code structure</p>	<ul style="list-style-type: none"> • Handouts • GitHub repository URL • Computers with internet access 	<p>5 minutes</p>
<p>Presentation/Practice/Formative Evaluation</p>	<ul style="list-style-type: none"> • Plan form structure in groups 	<ul style="list-style-type: none"> • Computers with code editors 	<p>135 min.</p>

<ul style="list-style-type: none"> • Group Activity: • Form groups and assign them to plan their form structure. • Create a basic HTML form using the specified tags (and provided structure). • Add a submit button and implement a basic JavaScript function to handle form submissions [Fetch with thenables or async await, XMLHttpRequest will be allowed, jQuery will be frowned upon] • Ensure forms contain inputs for user information and a query section. • Integrate Cloudflare CAPTCHA for form validation. • Ensure inputs are verified with JavaScript 	<ul style="list-style-type: none"> • Code the HTML form components • Implement JavaScript for form validation and submission • Integrate CAPTCHA functionality • Test the form functionality • Apply styling to the form 	<ul style="list-style-type: none"> • Documentation for: <ul style="list-style-type: none"> • - HTML forms • - JavaScript • - Cloudflare Turnstile API • - Zapier integration 	
<p>Post-assessment...</p> <p>Activity: Each group presents their form</p> <p>Peer review to identify missing elements or possible improvements?</p>	<p>Present completed form</p> <p>Demonstrate functionality</p> <p>Provide feedback to other groups</p>	<ul style="list-style-type: none"> • Projector • Completed projects 	<p>20 min.</p>
<p>Summary / Closure activities...</p> <p>Recap the process and importance of each form component.</p> <p>Discuss potential real-world applications of their form.</p> <p>Highlight key learning points about:</p> <ul style="list-style-type: none"> • Form structure and HTML elements • JavaScript validation techniques • CAPTCHA integration 	<p>Participate in discussion</p> <p>Share insights and challenges faced</p> <p>Ask final questions</p>	<ul style="list-style-type: none"> • Whiteboard for notes 	<p>10 minutes</p>

- Form submission processes

Summary

This lesson plan introduces participants to creating functional web forms using HTML, JavaScript, and CSS.

Participants will collaborate in groups to build a form that includes user inputs, a query section, and a CAPTCHA using Cloudflare for security.

The workshop is designed with the BOPPPPS model to ensure active participation and a comprehensive understanding of web form essentials.

Participants will leave with a foundational skill set in form development and an understanding of integrating basic security functions in web applications, which they can apply to their capstone project.

Part B: Workshop Plan Rationale

The lesson plan incorporates several elements of effective teaching and learning, including:

1. **Clarity and Structure:** The BOPPPPS model provides a clear, structured approach to the lesson, including a Bridge-In to set the context, Objectives to define learning outcomes, Participatory Learning for active engagement, and a Summary to consolidate knowledge.
2. **Active Learning:** The lesson involves students actively working in groups to create a form. This encourages collaboration, critical thinking, and problem-solving, allowing students to apply theoretical knowledge practically.
3. **Motivation:** Relating the activity to a real-world scenario where the task mimics a workplace challenge can motivate students by showing the relevance to their future careers. The competitive aspect of completing the task within a limited time can also drive student engagement.
4. **Aligned Objectives and Activities:** The objectives are clearly outlined and aligned with the activities students will engage in. For example, building a form with HTML, JavaScript input validation, and integrating a CAPTCHA align with learning the essential skills needed to meet these objectives. The workshop plan also aligns with the following outcome from the "Skills/Practical/Hands on" section of the course profile: "Create an HTML contact form from scratch (connected to email using a free service such as Zapier, or Google forms)".
5. **Feedback Opportunities:** Students receive feedback through peer review. This process allows them to reflect on their work, identify missing components, and consider improvements, which reinforces learning and skill refinement.
6. **Practice and Reiteration:** The workshop format and the requirement to produce a functional form provide students with iterative practice opportunities. They are able to refine their skills as they work towards the task completion.

These components are important because they ensure that the lesson is engaging, relevant, and educationally effective. Motivating students can involve connecting tasks to real-world applications that interest students, ensuring objectives are clear and that activities are directly aligned with these objectives. Opportunities for practice and feedback allow students to apply what they've learned, make mistakes in a supportive environment, and receive constructive guidance that enhances understanding and retention.

Promoting active learning through collaborative, hands-on activities ensures that students are not passive recipients of information; rather, they engage with content actively, which deepens understanding and facilitates long-term retention. The structured yet flexible workshop encourages students to explore solutions, fostering independence and confidence in their skillset.