Lesson 1.3: Using the DOM

https://codehs.com/course/7968/lesson/1.3

Description	In this lesson, students learn how to modify HTML tags on a webpage using the DOM. The DOM, or Document Object Model, translates HTML files into accessible objects that can be manipulated or added to a webpage.
Objective	Students will be able to: • Modify existing elements on a web page using `document.getElementById` • Modify existing elements on a web page using `document.getElemenyByTagName` • Explain the purpose of the DOM, and how it is used to manipulate HTML files
Activities	1.3.1 Video: getElementById 1.3.2 Check for Understanding: getElementById Quiz 1.3.3 Example: Welcome to My Site! 1.3.4 Exercise: Let's Get to Know You 1.3.5 Exercise: Simple Math 1.3.6 Video: Using the DOM 1.3.7 Check for Understanding: Using the DOM Quiz 1.3.8 Example: Multiple p tags 1.3.9 Exercise: Menu Opinion 1.3.10 Exercise: Longest Paragraph
Prior Knowledge	• Script tags • Lists • Iteration • The console
Planning Notes	• This is a longer lesson. It can be split into two at the video *Using the DOM*. • This lesson includes a handout. Consider using this during class, or assigning it as homework. • This lesson involves accessing items in a list. If students are unfamiliar with this topic or could use additional practice, be sure to

	review *Intro to Arrays* in the *JavaScript Bootcamp* module.
Standards Addressed	

Teaching and Learning Strategies	**Lesson Opener:**
	
	• Have students answer the beginning of class discussion questions (5- 7 mins).
	    ○ Consider pulling up a completed version of the *Welcome to My Site* example, and ask if students would be able to complete that with the knowledge that they currently have. Explain to them that in this lesson, they are going to learn how they can manipulate elements on a webpage using JavaScript.
	
	Activities:
	
	• Watch *getElementById* and complete the corresponding quiz. (6 - 8 mins)
	• Explore *Welcome to My Site!*. (3 mins)
	    ○ Have students open the console and try typing document.getElementById directly into the console. They should see that it actually returns the element object.
	• Complete *Let's Get to Know You* and *Simple Math* (10 - 12 mins).
	• Watch *Using the DOM* and complete the corresponding quiz. (10 mins)
	    ○ Consider splitting this lesson into two by showing this during the next class period.
	    ○ Consider using the *Practice with the DOM* handout before moving on to the next video.
	    ○ If students are not familiar with lists, use the rest of class to go over or cover lists *instead* of moving on to this material.
	• Explore *Multiple p tags* (3 mins).
	    ○ Make sure that students open the console to see how the elements are being manipulated.
	• Complete *Menu Opinion* and *Longest Paragraph* (10- 12 mins)
	    ○ *Longest Paragraph* is completed most easily using iteration. Students may need a refresher on iteration in order to complete this assignment.
	
	Lesson Closer:
	
	• Complete the end of class discussion questions as a whole class or as an exit ticket. (5 mins)

Discussion Questions	**Beginning of Class:**
	
	• What is the purpose of the `script` tag?
	    ○ *Allows programmers to add JavaScript to an HTML file.*
	• Using the script tag, how can we ask a user for their name?
	    ○ *var name = prompt("What is your name?)*

- Given what we learned last week, is it possible for us to get this on to our actual webpage?
  - *No, students have not learned enough to make this possible.*

End of Class:

- What's the difference between `getElementById` and `getElementByTagName`? Why would we use one instead of the other?
  - *If there is only one tag that we want to get access to we would use `getElementById`, but if there are a couple of tags that we want to access, we should use `getElementByTagName`. The former returns a single value, while the latter returns a list of elements.*
- What is innerHTML and how do we use it?
  - *innerHTML is used to access or set the HTML value of a tag. It can include text or tags.*
- How does the DOM enable the use of `getElementById` and innerHTML?
  - *The DOM converts an HTML file into a usable object. This object can then be accessed using `getElementById`, and its properties, like InnerHTML can be manipulated as a result.*

Resources/Handouts	[Practice with the DOM](#) [Practice with the DOM (Teacher Version)](#)

Vocabulary

Term	Definition

Modification: Advanced	**Modification: Special Education**	**Modification: English Language Learners**

- Have students create a DOM tree for each of the exercises that they complete in the lesson.
- Have students return to *Simple Math* to complete it using `getElementsByTagName`.
	- Provide students with a reference sheet, including terms from previous JavaScript courses that will come up in this lesson.
	  - Iteration, Lists, Getting the Max Value
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