

**Introduction to JavaScript**

*The TechGirlz Mission: Empowering girls to be future technology leaders.*

**OVERVIEW:**

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| **BRIEF LESSON DESCRIPTION:** |
| * *An introduction to JavaScript. Exercises involve teaching a simple understanding of “functions,” by using real-life examples.* * *JavaScript is what makes the web move. JavaScript is used to make apps, interactive websites, responsive animations, web games... pretty much whatever you can think up. In this course you will learn the basic concepts of JavaScript, learn to talk directly to your website, and create your own JavaScript program!* |
| **SPECIFIC LEARNING GOAL(S)/OBJECTIVE(S):** |
| * *Goal is to make something with JavaScript involving functions.* |
| **ASSESSMENT:** |
| * *How will you know that students have achieved/understood the specific learning goals? What will be the final project? – Maybe a rubric?* |
| **RESOURCES/MATERIALS:** |
| * Screen to present the Teacher’s PowerPoint on. Individual computers for the students to work on. Additional resources: [Slides](http://slides.com/robingordonschaufler/techgirlzjs-2-2/live), Codecademy.org, Stackoverflow, [jQuery](http://api.jquery.com/) * Google | Learn to search for whatever you want to do. * jQuery plugins | Try googling “Awesome jquery plugins” |
| **LESSON PREPARATION:** |
| * Review [Slides](http://slides.com/robingordonschaufler/techgirlzjs-2--3/live#/), or other JavaScript instructional videos |

**LESSON:**

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| **INTRODUCTION: (~20 min)** |
| 1. Introduce yourself (e.g. What is your story? How did you get interested in tech and choose your job?). Share stories, both your own and those of friends and accessible role-models throughout the workshop. *(5-10 min)* 2. Provide students the opportunity to get to know one another using an icebreaker/get-to-know-you game (e.g. people bingo; two truths and a lie; pair-up, share, and partners present one another) or simple introduction by name (e.g. your name, why you’re here, favorite activities…). *(10-15 min)*    * + Students answer: “Why are you here?” & “What do you want to get out of this?” 3. Review any rules and expectations (e.g. raise hand, restroom location and policy, internet safety…). *(3 + min)*    * + Students are introduced to the topic of “buzzwords” through an exercise where they are told to crumple up a piece of paper and to “chuck it at the instructor” if he/she uses a word that the students don’t know 4. Next, share/show what students are going to learn today and ask/explain WHY this is a valuable skill. Share the workshop general outline so students know what to expect. *(5 min)* |

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| **LESSON: (~50 min) (this includes a few mini lessons leading to a bigger project)**  *Note: lessons can and should be modified for the instructor’s style and the students’ skill level and interests.* |
| **1. Mini-Lesson (~15 minutes):**   * Students can take notes while sitting at their desks and paying attention to the Teacher at the front of the class * Use PowerPoint as reference to introduce “JavaScript” (variables, statements and functions), “Front-end/ Back-end Development”, “Client/ Server” * Use PowerPoint as reference to introduce the “Stage” and “Script” analogy  2. Activity: Enact an example as a skit, using “Stage” and “Script” analogy 3. Mini-Lession:  * Students open Chrome and use the Inspector tool to set variables (ex: names in quotes or numbers not in quotes) and alerts, then advance to using a console.log * Demonstrate what a “Function” is by writing a “program” that instructs the assistant to walk across the room (ex: left foot forward. right foot forward..., then wrapping that into a ‘function’ that so they could just say 'walk across room' instead of 'left foot forward...')   **3. Activity (~25 minutes):**  • Create variables and console.log with them  e.g. var firstName = ‘Grace’;  var lastName= ‘Hopper’;  var greeting = ‘Hello’;  console.log(greeting + ‘ ‘ + firstName + ‘ ‘ + lastName);  • Make a variable equal other variables  e.g. from previous example: var greeting = “What's up";  console.log(greeting);  • Create a function out of your string so that it auto updates (ex: if you update a variable, your function will update)  •Uses PowerPoint as reference to introduce the basic programming functions to the students  • Include examples of the coding text in the PowerPoint to illustrate concept and assist the students in following along in the activity  • A number of extra exercises were improvised to additionally illustrate what functions were to the students.    **3. Share (~10 minutes):**  • The students shared their progress in their coding assignments  • Shared their recommendations for the class (which included adding more time focused to games, rather than websites)  • Teacher introduces a number of additional resources for the students to access in their free time outside of the workshop to learn more about JavaScript  • Conclusion on the importance of JavaScript in modern technology  •End by reminding the students when the next workshop will be. |
| **EXTENSION ACTIVITIES: (for those who want more challenge or who finish early)** |
| 1. **materials folder**    1. Open Explorer, open index.html    2. Study the html and styles    3. Discuss the <script> tags       * Inject DOM    4. Go over the included script       * Run the included function in the console       * Inject new DOM 2. **icecream folder (bonus, if there is time)**    1. Open Explorer, open index.html    2. Study the html and styles    3. Try the app    4. Make modifications |

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| **CLOSING: (~25 min)** |
| 1. At the end, encourage students to share/present their project with/to other participants (and families). This can be done 1-on-1 with a partner or with the whole group depending on interest. *(10 min)* 2. Allow students an opportunity to give feedback on their experience (e.g. what they learned, successes, questions, challenges, and other reflections). Students may want to share their next learning goals. *(5 min)* 3. Give students (and parents) ideas to extend and continue their learning after the workshop (e.g. sites to learn on their own; upcoming, local tech events; computer classes in high school). Consider making a small handout with this information. *(5 min)* 4. Administer the “Techshop Survey” before the students leave. *(5-10 min)* 5. Say your goodbyes and encourage students to continue to learn about tech. |

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| **INSTRUCTOR REFLECTION: (after the lesson)** |
| 1. Please share any feedback about your lesson (e.g. What worked? What was too easy/too hard? What could be improved?) We appreciate your time and your feedback--it will help us build upon successes and improve future workshops. Please complete this quick survey<http://bit.ly/1m8eSJJ> |

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| **ADDITIONAL RESOURCES: (useful slides, images, videos, and sites)** |
| * Sites: Codecademy.org, Stackoverflow, <http://api.jquery.com/>, w3schools.com * Slides: [Slides](http://slides.com/robingordonschaufler/techgirlzjs-2--3/live#/) * Videos: |

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| **12 TEACHING TIPS:** |
| 1. Be an accessible and relatable role-model and share stories of accessible role-models who have succeeded in tech (e.g. read a short biography; tell the story of a friend). 2. Model what you’re doing or think aloud; explain technical jargon. 3. For middle school aged students, try to limit your talking/lecture time to no more than 15 minutes and then allow them to create/do an activity. 4. Do not focus on how hard the task might be, just jump in with enthusiasm and encouragement. 5. It is ok to say that there are fewer women in tech, but also mention that there is no difference between male and female performance. More women are interested in getting into tech. 6. Encourage perseverance and say making mistakes is part of the process. Teach students how to find answers to questions instead of always answering questions so students can continue to learn on their own when you are not there. 7. Give specific, genuine praise (e.g. “You were really careful in the way you…” , “I can tell you took your time and were thoughtful about…” NOT “that is good”). Encourage students to go on learning about tech. 8. However brief, discuss internet safety. 9. Be prepared with extension/challenge/modified activities for students who are struggling or excelling. 10. As you prepare your lesson, be sure to think about what you’re doing and what the students are doing. Seeing the lesson from their perspective is helpful for improving engagement. 11. Students may find it useful to have you circulate the room and ask them questions. Be sure to talk with each student at least once during the lesson. 12. Make sure that you have actually tested what you are asking them to do! That way you can be prepared for the hard parts where they may struggle. |