Introduction to JavaScript

Presented by AcademiaEdge

Teachers: Jeremi Kilimnik (10th)
Assistant Teacher: Maxwell Ye (10th)

Timing: 2/20-5/22, Saturday from 5-6 PM EST
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Requirements: Any student may join if interested. This class is, however, highly recommended for students ages 11 and up. Students also must have a personal Gmail account, whether it's their own Gmail account or if it is owned by their parents to access google classroom and other course materials.

About Me:

I am Jeremi Kilimnik, I am from Rosa-Luxemburg-Gymnasium (located in Germany). I want to help people begin their journey into programming by introducing and teaching students JavaScript, one of the world's most versatile and used programming languages. Jeremi, the teacher of this course, is well versed in JavaScript and has built and developed projects of his own. He is excited to help people begin their journey into programming and he can't wait to spread his knowledge.

Class Description:

Introduction to JavaScript is a course offered by AcademiaEdge, a nonprofit organization created by high school programmers. There are undecided classes in total, each class is an hour long. A detailed description of the class syllabus can be found below. All classes are virtual and will be held through Zoom. In addition to hosting classes through Zoom I will be using google classroom to submit assignments and google calendar for parents and students to keep track of classes and assignments. Each class lecture will be recorded and put in a google drive along with the class slides for all students to reference too when doing their assignments.

Students can ask questions at any time during the class and the assistant or teacher will answer them. Additionally, students may message teachers via google classroom or by email and our teachers will respond as soon as possible. In order to give this individualized experience filled with fun projects and assignments guided towards young children, classes will be limited to 10-15 students so that teachers can give high-quality attention to each student. Sign up is first come first serve and a waitlist may be created if there is excessive student participation. This course will be guided towards students of ages 11 and up, but any student may join if interested. We are excited to introduce the world of JavaScript Programming to your child!

Syllabus:

First Class Schedule:

15 minutes	Introduction to JavaScript
15 minutes	(Installing and) Setting up JavaScript
30 minutes	Go over the syllabus, explain class resources and policies, Go over writing basic JavaScript code

General Class Schedule:

10 minutes	Going over homework, review the previous lesson, Answer any questions
40 minutes	Go over the days lesson using interactive examples, practice, and projects
10 minutes	A reflection and summary of what was learned that day, go over and questions and assign homework

Course Content

Class 1:
Intro to JavaScript
Our First JavaScript Program
Manipulating HTML with JavaScript
Basic, Input, Output, Comments
Application Architecture
Variables and Expressions
IIFE, Scope, and Window Object

Class 2:
Engines and Runtime Environments
Global vs Local Variables
Block Scoping
Primitives and Objects
Difference Between Primitives and Objects
Number Data Type

Class 3:
Arithmetic Operators, Precedence, Associativity
Increment, Decrement, and Assignment Operators
parseInt and parseFloat Methods
Converting Decimal Numbers to Binary, Octal, and Hexadecimal
Number Instance Methods and Math Object
String Data Type

Class 4:
String Methods
More String Methods
Functions and Objects
If, Else, Else If
Benefit of Control Flow
Comparison Operators
Logical Operators
Switch Statement
Single Line if Statement

Class 5:
Ternary Operator
Intro to Loops
Creating Loops
Loop Examples
Nested Loops

Class 6:

Intro to Arrays
Intro to Multidimensional Arrays
Using Arrays
Iterate Through Array Examples Search an Array
Average of Array Values
Fill Array from User Input Indefinite Loop and Sentinel Value

Class 7:

Array Methods Part 1
Array Methods Part 2
Array Methods Part 3
forEach Method Arrays
Iterate Multidimensional Array with for and forEach

Class 8:

Label with Break and Continue
Dates
Using Dates and Unix Timestamp in JavaScript
Date Methods
Intro to Functions - Functions Part 1

Class 9:

Passing Arguments by Value - Functions Part 2
Callback Functions - Functions Part 3
Function Declarations and Expressions
Hoisting
Hoisting in Practice
Functions as First Class Citizens (Objects)

Class 10:

Memoization and Algorithms Optimization
Default Parameters, Rest Parameters, Implicit Parameters
Introduction to this
this
Call and Apply
bind
Arrow Function

Class 11:

Creating Arrow Functions
this with Arrow Functions
this with Arrow Methods and Object Literals
bind with Arrow Functions
Intro to Debugging
Event Listener Breakpoints
Exemptions (Throw, Catch, Finally)

Object Oriented JavaScript
Creating a Constructor Function

Class 12:
Creating a Factory Function
Creating Prototype Methods for Constructor Functions
Prototype Inheritance
Prototypes and Constructors
Setting an Object Prototype Using Object.setPrototypeOf
Override in Prototypal Inheritance
Instance Properties vs Prototype Properties
Polymorphism
Polymorphism Example
Polymorphism Example
Check an Object for a Property Using in

Class 13:
hasOwnProperty Method
How to Get an Array of Property Names from an Object
Converting Object Literals to Constructors
Setting Prototypes with Constructors
instance Operator
HTML Essentials
CSS Essentials
Intro to the DOM

Class 14:
Working with DOM Children
getElementsByTagName and getElementsByClassName
Node Types and Node Names
Text Node ChildNodes Explained
Modifying nodeValue
Practice with Event Listeners
Working with Attributes in the DOM
Dynamically Adding Nodes
Conclusion and What's Next

Rules and Expectations

Classroom Procedures:

Students are to stay muted at all times except if they have a question or when asked to be unmuted. The student may temporarily unmute himself to ask his/her question. Alternatively, if the student would not like to speak in front of the class, then the student may ask his/her question in the Zoom chat. We encourage students to ask questions and regularly participate in class. Also, we would like students to be respectful to their classmates and teachers.

Students, please do not:

- Eat or drink with your microphone turned on
- Be disrespectful to teachers or other students
- Put inappropriate pictures on your webcam
- Send inappropriate messages in the class chat

Please do:

- Ask questions
- Be attentive
- Be engaged and active throughout the class
- Make sure to have your camera on throughout the class
- Do assignments thoroughly
- Submit assignments before deadline
- Have Fun!

Google Classroom Layout:

Each lesson's recording will be found on google classroom along with the class's slides and notes. Homework assignments will be assigned and submitted via google classroom as well. Students can ask questions through the messaging system in google classroom or via email.

Homework procedures:

Students will be given homework in google classroom via google docs, which will consist of inserting screenshots or short-answer/multiple-choice questions, or google forms. The google forms will mainly be used for knowledge checks, while the google docs will be used for general homework assignments. Each assignment is due 24 hours before the next class to give ample time for teachers to grade students' assignments. Students should send a message or an email if they are unable to turn in their homework by then with a valid explanation of why they will not be able to turn in their homework by the deadline, and the teachers will come up with a possible solution. This also applies to missing a class. Course projects will also be assigned and submitted through Google Classroom. If a student misses an assignment deadline repeatedly an email will be sent to his/her parents.