3-Week JavaScript Course Outline

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Objective: By the end of this course, students will have a foundational understanding of JavaScript, enabling them to create interactive web applications.

Week 1: JavaScript Fundamentals

Day 1: Introduction to JavaScript

- What is JavaScript?
- Role of JavaScript in Web Development (HTML, CSS, JS)
- Setting up the environment (Browsers, IDEs, Console)
- Writing your first JavaScript program (`console.log()`)

Day 2: Variables and Data Types

- Declaring variables: `var`, `let`, `const`
- Data types: strings, numbers, booleans, undefined, null
- Type conversion (explicit and implicit)

Day 3: Operators and Expressions

- Arithmetic, comparison, logical operators
- String concatenation and template literals
- Practice: Simple calculator

Day 4: Control Structures

- Conditional statements: `if`, `else if`, `else`, `switch`
- Loops: `for`, `while`, `do...while`
- Practice: FizzBuzz challenge

Day 5: Functions

- Defining and calling functions
- Parameters and return values
- Arrow functions
- Practice: Create a function to calculate the factorial of a number

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Week 2: Intermediate JavaScript

Day 6: Arrays

- Declaring and working with arrays
- Array methods: push, pop, shift, unshift, splice, slice
- Iterating through arrays: for, forEach, map, filter, reduce
- Practice: Reverse an array without using built-in methods

Day 7: Objects

- Creating objects and accessing properties
- Adding, modifying, and deleting properties
- Nested objects
- Practice: Create an object to represent a student and their grades

Day 8: DOM Manipulation Basics

- What is the DOM?
- Selecting elements: getElementById, querySelector, etc.
- Modifying elements: innerHTML, textContent, style
- Adding and removing elements
- Practice: Create a to-do list app (static)

Day 9: Events

- Adding event listeners
- Common events: click, mouseover, keydown
- Event object
- Practice: Interactive to-do list with "add" and "remove" functionality

Day 10: Error Handling and Debugging

- Try...catch and throwing errors
- Debugging in the browser console
- Writing clean, readable code
- Practice: Debugging exercises

Week 3: Advanced JavaScript Concepts

Day 11: Asynchronous JavaScript

- Understanding synchronous vs asynchronous code
- Callbacks and Promises
- `async/await` syntax
- Practice: Fetching data from a public API

Day 12: JavaScript Modules

- What are modules?
- Importing and exporting functions and variables
- Practice: Split a project into multiple modules

Day 13: ES6+ Features

- Destructuring
- Spread/rest operators
- Default parameters
- Practice: Refactor existing code using ES6+ features

Day 14: Working with APIs

- Introduction to `fetch`
- Making GET and POST requests
- Handling API responses and errors
- Practice: Build a weather app using a free weather API

Day 15: Final Project

- Plan and start a mini-project: **Interactive Quiz App**
    - Features:
        - Fetch questions from an API
        - Display questions with options
        - Track and display the score
        - Provide feedback

Wrap-Up and Assessment

- **Day 16 (Optional): Final Project Presentation**
    - Showcase projects
    - Peer reviews and feedback
- **Assessment**:
    - Quizzes (covering all topics)

- Final project evaluation