Lesson 1: Beginner JavaScript Review

Lesson Overview

Duration: ~2 hours

Goal: Ensure students have a solid grasp of JavaScript fundamentals before diving into intermediate topics.

Format: Explanation + Interactive Coding Exercises

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1. Variables & Data Types (20 min)

Concepts:

- `let` and `const` (difference from `var`)
- Basic data types: Number, String, Boolean

Example Code (Start Code for Teacher)

```
// Declaring variables
let name = "Alice";
const age = 12;
let isStudent = true;

console.log("Name:", name);
console.log("Age:", age);
console.log("Is a student?", isStudent);
```

Discussion Questions:

- What is the difference between `let` and `const`?
- What happens if you try to reassign a `const` variable?

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2. Operators & Expressions (15 min)

Concepts:

- Arithmetic Operators (`+` , , , `/` , `%`)
- Comparison Operators (`>` , `<` , `>=` , `<=` , `===` , `!==`)
- Logical Operators (`&&` , `||` , `!`)

Example Code (Start Code for Teacher)

```
let a = 10;
let b = 3;
console.log("Addition:", a + b);
console.log("Modulo:", a % b);
console.log("Comparison:", a > b);
console.log("Logical AND:", a > 5 && b < 5);
```

Quick Challenge:

- Predict the output before running the code.

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3. Conditional Statements (20 min)

Concepts:

- `if` , `else if` , `else` statements
- Nested conditions

Example Code (Start Code for Teacher)

```
let score = 85;
if (score >= 90) {
    console.log("Grade: A");
} else if (score >= 75) {
    console.log("Grade: B");
```

```
} else {
    console.log("Grade: C");
}
```

Class Activity:

- Modify the program to include more grading categories.

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4. Loops (25 min)

Concepts:

- `for` loop
- `while` loop
- Loop control (`break` , `continue`)

Example Code (Start Code for Teacher)

```
// For loop example
for (let i = 1; i <= 5; i++) {
    console.log("Iteration:", i);
}

// While loop example
let count = 0;
while (count < 3) {
    console.log("Count is:", count);
    count++;
}
```

Challenge:

- Print all even numbers from 1 to 10 using a loop.

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5. Arrays & Basic Operations (20 min)

Concepts:

- Creating arrays
- Accessing elements
- Basic methods: `push()` , `pop()` , `length`

Example Code (Start Code for Teacher)

```javascript
let fruits = ["Apple", "Banana", "Cherry"];
fruits.push("Mango"); // Add a new fruit
console.log("First fruit:", fruits[0]);
console.log("Total fruits:", fruits.length);
```

Activity:

- Create an array of student names and print each name using a loop.

6. Functions (20 min)

Concepts:

- Function declaration
- Parameters & return values

Example Code (Start Code for Teacher)

```javascript
function greet(name) {
    return "Hello, " + name + "!";
}
console.log(greet("Alice"));
```

Class Challenge:

- Write a function that takes two numbers and returns their sum.

7. Mini Project: Math Quiz Game Introduction (10 min)

Goal:

- Reinforce concepts of variables, loops, conditionals, and functions.

- Engage students in interactive problem-solving.

- Prepare students to apply their knowledge to larger projects.

Instructor Demonstration:

Before students begin the mini-project, the instructor will demonstrate two previously designed projects:

1. **Simple Calculator** – Reinforcing function logic, event handling, and conditionals.

2. **Multiplication Table Generator** – Reinforcing loops and user input handling.

These demonstrations will provide students with a concrete understanding of how to structure their JavaScript logic.

link to the home work: https://github.com/zzz403/Intermediate-JavaScript-Curriculum.git

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8. Recap & Q&A (10 min)

- Quick review of the main concepts.

- Ask students what they found easy/hard.

- Provide hints for next lesson (working with structured data).