

# Lesson Plan

## ES6

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### Week 1:

#### Introduction to ES6

- Overview of ES6 features and their benefits
- Understanding the role of Babel in ES6 development
- Transpiling ES6 code to ES5 using Babel

#### Variables and Declarations

- Let and const declarations
- Understanding the scope and hoisting rules of let and const
- Using template literals for string interpolation
- Destructuring arrays and objects

### Week 2:

#### Functions and Arrow Functions

- Understanding the differences between function declarations and function expressions
- Arrow function syntax and benefits
- Using default function parameters
- Using the spread operator

#### Classes and Object-Oriented Programming

- Introduction to ES6 classes
- Defining and using class methods and properties
- Inheritance and subclassing with ES6 classes
- Private class fields and methods

## Week 3:

### Promises and Asynchronous Programming

- Understanding asynchronous programming in JavaScript
- Creating and using Promises for asynchronous code
- Handling errors with Promises

### Modules and Imports/Exports

- Introduction to ES6 modules
- Exporting and importing modules
- Using named exports and default exports
- Importing and exporting functions, classes, and variables

## Week 4:

### Array and Object Helpers

- `forEach`, `map`, `filter`, `reduce`, and `find` array methods
- `Object.keys`, `Object.values`, and `Object.entries` object methods
- spread operator for merging arrays and objects

### String and Number Helpers

- Using the `includes`, `startsWith`, `endsWith`, and `repeat` string methods
- Using the `isNaN` and `isFinite` number methods
- Using the `parseInt` and `parseFloat` methods for converting strings to numbers

# Lesson Plan

## React

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### Week 5:

#### Introduction to React and GitHub

- Introduction to React and its ecosystem
- Setting up a React development environment
- Introduction to Git and GitHub
- Creating a GitHub repository for your React project
- The virtual DOM

#### Building React Components

- Building simple React components
- Working with React state and props
- Using JSX and understanding its benefits
- Debugging React components

### Week 6:

#### Advanced React Components

- Using React lifecycle methods
- Building reusable components
- Working with higher-order components
- Handling events in React components

#### Styling React Applications

- Understanding the different approaches to styling in React
- Styling React components with CSS, Sass, Styled Components and Material UI
- Managing styles with theming and style guides

## Week 7:

### React Hooks

- useState, useEffect, useContext, useReducer
- useCallback, useMemo, useRef
- Creating custom hooks
- Sharing stateful logic with custom hooks

## Week 8:

### React Routing and Navigation

- Setting up React Router
- Creating navigation menus and links
- Building protected routes for authentication

## Week 9:

### State Management with Redux

- Introduction to Redux and its principles
- Setting up a Redux store
- Using actions, reducers, and selectors in Redux
- Managing async state with Redux-Thunk

## Week 10:

### Working with Forms in React

- Building forms with React
- Handling form input validation and submission
- Using third-party form libraries in React

### Introduction to Testing React Applications

- Understanding the importance of testing in React

- Setting up a testing environment
- Testing React components with Jest
- Writing testable code in React

## Week 11:

### Working with APIs in React

- Making HTTP requests with Axios
- Using APIs in React applications
- Implementing pagination and filtering

### Deploying React Applications

- Preparing a React application for deployment
- Deploying a React application to GitHub Pages
- Deploying a React application to other hosting providers

## Week 12:

### Final Project

- Apply what you've learned to build a full-scale React app
- Present your project at the end of the week

