

## JavaScript Notes (Beginner Friendly)

### 1. What is JavaScript?

JavaScript is a programming language used to make websites interactive. It helps websites respond to user actions like clicking a button, filling a form, or moving the mouse. JavaScript works mainly in the browser, but it can also run on servers using Node.js.

HTML gives structure, CSS gives style, and JavaScript gives behavior.

### 2. Why JavaScript is Important

JavaScript is important because:

It makes websites interactive

It runs on almost every browser

It is easy to learn for beginners

It is used in web, mobile apps, games, and servers

Today, JavaScript is one of the most popular languages in the world.

### 3. How JavaScript Works

JavaScript code is executed by the browser's JavaScript engine.

The browser reads the code line by line and runs it.

JavaScript can be written:

Inside HTML using <script> tag

In a separate .js file

### 4. Variables in JavaScript

Variables are used to store data.

JavaScript uses:

`var` (old, not recommended)

let (used for changeable values)

const (used for fixed values)

Example:

```
let age = 15
```

```
const name = "ARMY"
```

Rules:

Variable names should not start with numbers

No spaces allowed

Use meaningful names

## 5. Data Types

JavaScript has different types of data:

Number – for numbers

Example: 10, 3.5

String – text inside quotes

Example: "Hello"

Boolean – true or false

Example: true, false

Undefined – variable declared but no value

Null – empty value

Object – collection of data

Example: {name: "RM", age: 30}

Array – list of values

Example: ["Jin", "Suga", "J-Hope"]

## 6. Operators

Operators are used to perform actions.

Arithmetic Operators:

+ addition

- subtraction

\* multiplication

/ division

% remainder

Comparison Operators:

== equal

==== equal value & type

!= not equal

> greater than

< less than

Logical Operators:

&& AND

|| OR

! NOT

## 7. Conditional Statements

Conditional statements are used to make decisions.

if statement:

Runs code if condition is true.

if–else:

Runs one block if true, another if false.

else if:

Used for multiple conditions.

These help programs think logically.

## 8. Loops

Loops are used to repeat code.

for loop:

Used when number of repetitions is known.

while loop:

Runs while condition is true.

do-while loop:

Runs at least once, then checks condition.

Loops save time and reduce repeated code.

## 9. Functions

Functions are blocks of code that perform a task.

Why functions are useful:

Code reuse

Easy to manage

Clean structure

Types:

Normal function

Arrow function

Functions can take inputs (parameters) and return outputs.

## 10. Arrays

Arrays store multiple values in one variable.

Example uses:

List of names

Marks of students

Shopping items

Common array methods:

`push()` – add item

`pop()` – remove last item

`length` – size of array

## 11. Objects

Objects store data in key–value pairs.

Example:

Name

Age

Hobby

Objects help organize data clearly.

## 12. Events

Events happen when a user interacts with a webpage.

Examples:

Click

Mouse move

Key press

Form submit

JavaScript reacts to events and performs actions.

### 13. DOM (Document Object Model)

DOM is a way JavaScript accesses HTML elements.

Using DOM, JavaScript can:

Change text

Change colors

Add or remove elements

React to user actions

DOM makes webpages dynamic.

### 14. JavaScript in Real Life

JavaScript is used in:

Websites (buttons, sliders, forms)

Mobile apps

Games

Servers

Animations

Online tools

Popular JavaScript frameworks:

React

Angular

Vue

## 15. Advantages of JavaScript

Easy to learn

Fast execution

Runs everywhere

Huge community support

Powerful and flexible

## 16. Disadvantages of JavaScript

Can be misused for hacking

Browser differences

Errors can stop execution

But with good practice, these issues can be managed.

## 17. Conclusion

JavaScript is a powerful and essential language for modern technology. It makes websites alive and interactive. Learning JavaScript builds strong logic and opens doors to many careers like web developer, app developer, and software engineer.

With regular practice, JavaScript becomes easy and fun. Start simple, practice daily, and

improve step by step.