

JAVASCRIPT QUICK REFERENCE

Basics

Variables

```
let name = "Alice"; // reassignable
const PI = 3.14;    // constant
var old = "avoid"; // function-scoped (legacy)
```

Data Types

string	Text: "hello" or 'hello'
number	Integer or float: 42, 3.14
boolean	true/false
null	Intentional empty value
undefined	Declared but not assigned
object	Key-value pairs: { a: 1 }
array	Ordered list: [1, 2, 3]
symbol	Unique identifier

Type Checking & Conversion

```
typeof "hello" // "string"
typeof 42      // "number"
Number("42")   // 42
String(100)    // "100"
parseInt("3.9") // 3
parseFloat("3.14") // 3.14
```

Strings

Template Literals

```
const name = "Alice";
`Hello, ${name}!` // Hello, Alice!
`Total: ${2 + 3}` // Total: 5
`Multi
line string`
```

String Methods

s.length	Number of characters
s.toUpperCase()	UPPERCASE copy
s.toLowerCase()	lowercase copy
s.trim()	Remove leading/trailing whitespace
s.split(",")	Split into array
s.includes("x")	Contains check → bool
s.indexOf("x")	First index (-1 if none)
s.slice(1, 4)	Substring by index
s.replace(a, b)	Replace first match
s.replaceAll(a, b)	Replace all matches
s.startsWith(x)	Check prefix → bool
s.endsWith(x)	Check suffix → bool
s.padStart(n, c)	Pad start to length n

Arrays

Creating & Accessing

```
const fruits = ["apple", "banana", "cherry"];
fruits[0]     // "apple"
fruits.length // 3
fruits.at(-1) // "cherry"
```

Mutating Methods

arr.push(x)	Add to end
arr.pop()	Remove & return last
arr.unshift(x)	Add to start
arr.shift()	Remove & return first
arr.splice(i, n)	Remove n items at index i
arr.sort()	Sort in place (lexicographic)
arr.reverse()	Reverse in place

Non-Mutating Methods

arr.map(fn)	Transform each element
arr.filter(fn)	Keep elements where fn is true
arr.reduce(fn, init)	Accumulate into single value
arr.find(fn)	First match or undefined
arr.findIndex(fn)	Index of first match (-1)
arr.includes(x)	Contains check → bool
arr.slice(a, b)	Shallow copy of portion
arr.join(",")	Join into string
arr.forEach(fn)	Iterate (no return value)
[...a, ...b]	Concatenate arrays (spread)

Objects

Creating & Accessing

```
const user = { name: "Alice", age: 20 };
user.name   // "Alice"
user["age"] // 20
user.gpa = 3.85; // add/update
```

Destructuring & Spread

```
const { name, age } = user;
const copy = { ...user, age: 21 };
```

Object Methods

Object.keys(o)	Array of keys
Object.values(o)	Array of values
Object.entries(o)	Array of [key, value] pairs
Object.assign(t, s)	Copy properties s → t
"k" in obj	Key exists? → bool
delete obj.k	Remove property

Object.freeze(o)

Make immutable (shallow)

Control Flow

if / else if / else

```
if (score >= 90) {
  grade = "A";
} else if (score >= 80) {
  grade = "B";
} else {
  grade = "C";
}
```

Ternary & Nullish Coalescing

```
const status = score >= 60 ? "pass" : "fail";
const name = user.name ?? "Anonymous";
```

switch

```
switch (color) {
  case "red": stop(); break;
  case "green": go(); break;
  default: wait();
}
```

Loops

for / for...of / for...in

```
for (let i = 0; i < 5; i++) { }

for (const item of ["a", "b"]) { } // arrays

for (const key in obj) { } // object keys
```

while / do...while

```
while (count < 10) { count++; }

do { count++; } while (count < 10);
```

break & continue

```
for (let i = 0; i < 10; i++) {
  if (i === 5) break; // stop loop
  if (i % 2 === 0) continue; // skip
}
```

Functions

Function Declaration & Arrow

```
function greet(name) {
  return `Hello, ${name}!`;
}
const greet = (name) => `Hello, ${name}!`;
const square = x => x * x; // single param
```

Default Parameters & Rest

JAVASCRIPT QUICK REFERENCE (continued)

DOM

Selecting Elements

```
document.querySelector(".cls") // first match
document.querySelectorAll("li") // all matches
document.getElementById("main")
```

Modifying Elements

```
el.textContent = "new text";
el.innerHTML = "bold";
el.style.color = "red";
el.classList.add("active");
el.classList.toggle("hidden");
el.setAttribute("data-id", "42");
```

Events

```
btn.addEventListener("click", (e) => {
  console.log(e.target);
});
```

Creating Elements

```
const li = document.createElement("li");
li.textContent = "New item";
ul.appendChild(li);
el.remove(); // remove element
```

Fetch API

GET Request

```
fetch("https://api.example.com/data")
  .then(res => res.json())
  .then(data => console.log(data))
  .catch(err => console.error(err));
```

POST Request

```
fetch(url, {
  method: "POST",
  headers: { "Content-Type": "application/json" },
  body: JSON.stringify({ key: "value" }),
});
```

Async / Await

```
async function loadData() {
  try {
    const res = await fetch(url);
    const data = await res.json();
    return data;
  } catch (err) {
    console.error(err);
  }
}
```

Parallel Requests

```
const [users, posts] = await Promise.all([
  fetch("/users").then(r => r.json()),
  fetch("/posts").then(r => r.json()),
]);
```

Modules

Named Exports

```
// math.js
export const PI = 3.14;
export function add(a, b) { return a + b; }

// main.js
import { PI, add } from "./math.js";
```

Default Export

```
// logger.js
export default function log(msg) { }

// main.js
import log from "./logger.js";
```