

JAVASCRIPT

- JavaScript is the programming language of HTML and the Web.
- JavaScript \neq Java
- JavaScript is interpreted by the browser

JS WHERE TO

```
<!DOCTYPE html>
<html>
<head>
<script src="myScript.js"></script>
</head>

<body>
<h1>A Web Page</h1>
<p id="demo">A Paragraph</p>
<button type="button" onclick="myFunction()">Try it</button>

<script language="JavaScript">
function myFunction() {
    document.getElementById("demo").innerHTML = "Paragraph changed.";
}
</script>
</body>
</html>
```

JAVASCRIPT DISPLAY POSSIBILITIES

- Writing into an HTML element, using **innerHTML**.

```
document.getElementById("demo").innerHTML = 5 + 6;
```

- Writing into the HTML output using **document.write()**.

```
document.write(5 + 6);
```

- Writing into an alert box, using **window.alert()**.

```
window.alert(5 + 6);
```

- Writing into the browser console, using **console.log()**.

```
console.log(5 + 6);
```

COMMENTS

- Single Line

```
// Change heading:
```

- Multiple line

```
/*  
The code below will change  
the heading with id = "myH"  
and the paragraph with id = "myP"  
in my web page:  
*/
```

VARIABLES AND DATA TYPES

You declare a JavaScript variable with the **var** keyword:

```
var carName;
```

Note: semicolons separate JavaScript statements.

JavaScript variables can hold many **data types**: numbers, strings, booleans, objects and more:

```
var length = 16; // Number
var lastName = "Johnson"; // Stringvar
var x = false; // Boolean
```

IF AND SWITCH STATEMENT

```
if (condition) {  
    block of code to be executed if the condition is true  
} else {  
    block of code to be executed if the condition is false  
}
```

```
switch(expression) {  
    case n:  
        code block  
        break;  
    case n:  
        code block  
        break;  
    default:  
        code block  
}
```

FOR LOOPS

```
for (statement 1; statement 2; statement 3) {  
    code block to be executed  
}
```

```
for (i = 0; i < 10; i++) {  
    text += cars[i] + "<br>";  
}
```

```
var person = {fname:"John", lname:"Doe", age:25};
```

```
var text = "";  
var x;
```

```
for (x in person) {  
    text += person[x];  
}
```

WHILE LOOPS

```
while (condition) {  
    code block to be executed  
}
```

```
while (i < 10) {  
    text += "The number is " + i;  
    i++;  
}
```


FUNCTIONS

```
var x = myFunction(4, 3);  
var y = 10;  
  
function myFunction(a, b) {  
    var x = 5;  
    return a * b * x * y;  
}  
  
// returns 4 * 3 * 5 * 10
```

ANONYMOUS FUNCTIONS (ARROW FUNCTIONS)

```
// Traditional Anonymous function
function (a){
  return a + 100;
}
```

// 1. Remove the word "function" and place arrow between the argument and opening body bracket

```
(a) => {
  return a + 100;
}
```

// 2. Remove the body braces and word "return" -- the return is implied.

```
(a) => a + 100;
```

// 3. Remove the argument parentheses

```
a => a + 100;
```

HTML EVENTS

Here is a list of some common HTML events:

Event	Description
onchange	An HTML element has been changed
onclick	The user clicks an HTML element
onmouseover	The user moves the mouse over an HTML element
onmouseout	The user moves the mouse away from an HTML element
onkeydown	The user pushes a keyboard key
onload	The browser has finished loading the page

```
<button onclick="this.innerHTML = Date()">The time is?</button>  
<button onclick="document.getElementById('demo').innerHTML =  
Date()">The time is?</button>
```

STRING METHODS

```
var txt = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
var sln = txt.length;

var str = "Please locate where 'locate' occurs!";
var pos = str.indexOf("locate");
var pos = str.lastIndexOf("locate");
var pos = str.search("locate");

var str = "Apple, Banana, Kiwi";
var res = str.slice(7, 13);
var res = str.substring(7, 13);

str = "Please visit Microsoft!";
var n = str.replace("Microsoft", "W3Schools");
var n = str.replace(/Microsoft/g, "W3Schools");

var text2 = text1.toUpperCase();
var text2 = text1.toLowerCase();

var text = "Hello" + " " + "World!";
```

DATE METHODS

```
new Date()  
new Date(milliseconds)  
new Date(dateString)  
new Date(year, month, day, hours, minutes, seconds, milliseconds)
```

```
var d = new Date("October 13, 2014 11:13:00");  
document.getElementById("demo").innerHTML = d;  
document.getElementById("demo").innerHTML = d.toString();  
document.getElementById("demo").innerHTML = d.toUTCString();  
document.getElementById("demo").innerHTML = d.toDateString();
```

```
document.getElementById("demo").innerHTML = d.getDate();  
document.getElementById("demo").innerHTML = d.getDay();  
document.getElementById("demo").innerHTML = d.getHours();  
document.getElementById("demo").innerHTML = d.getMinutes();  
document.getElementById("demo").innerHTML = d.getSeconds();  
document.getElementById("demo").innerHTML = d.getMonth();  
document.getElementById("demo").innerHTML = d.getFullYear();
```

ARRAY PROPERTIES AND METHODS

```
var cars = ["Saab", "Volvo", "BMW"];  
cars[0] = "Opel";  
var name = cars[0];
```

```
var x = cars.length;  
var x = cars.sort();  
var x = cars.reverse();  
var x = cars.toString();  
var x = cars.join(" * ");  
cars.pop();  
cars.push("Audi");  
cars[cars.length] = "Audi";
```

```
var myGirls = ["Cecilie", "Lone"];  
var myBoys = ["Emil", "Tobias", "Linus"];  
var myChildren = myGirls.concat(myBoys);
```

OBJECTS

```
var myFather = {firstName:"John", lastName:"Doe", age:50,  
eyeColor:"blue"};
```

with a prototype:

```
function Person(first, last, age, eyecolor) {  
  this.firstName = first;  
  this.lastName = last;  
  this.age = age;  
  this.eyeColor = eyecolor;  
}
```

```
var myFather = new Person("John", "Doe", 50, "blue");  
var myMother = new Person("Sally", "Rally", 48, "green");
```

```
var myFatherFullName = myFather.firstName + " " +  
myFather.lastName ;  
//equivalent  
var myFatherFullName = myFather["firstName"] + " " +  
myFather["lastName"] ;
```

OBJECT METHODS

```
function Person(firstName, lastName, age, eyeColor) {
  this.firstName = firstName;
  this.lastName = lastName;
  this.age = age;
  this.eyeColor = eyeColor;
  this.changeName = function (newName) {
    this.lastName = newName;
  };
}

var myMother = new Person("Sally", "Rally", 48, "green");

myMother.changeName("Doe");
```


OBJECT ARRAYS METHODS

```
var contacts = [{}]
```

Add object

```
addContact(contacts, contact){  
    contacts = [...contacts, contact]  
}
```

Update object

```
updateContact(contacts, data){  
    contacts = contacts.map( c => (c.id === data.id ? data : c) )  
}
```

Delete object

```
deleteContact(contacts, idToRemove){  
    contacts.forEach( function () {  
        contacts = contacts.filter(function(contact) {  
            return contact.id !== idToRemove  
        })  
    })  
}
```

LEARN MORE ...

- <https://www.javascripttutorial.net/>
- <https://www.w3schools.com/js/>