



# Introduction to JavaScript for Engineers

An Online Continuing Education Course for Engineers

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# Introduction to JavaScript for Engineers

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## What is JavaScript?

JavaScript was created by Netscape in 1995. JavaScript was designed to add interactivity to HTML (HyperText Markup Language) pages. It is a lightweight programming language. It is a scripting language. It is an interpreted language, which means the script executes without compilation. It adds object-oriented capabilities to static HTML pages. JavaScript is open and cross-platform. JavaScript is usually embedded directly into an HTML page. You do not need a license to use JavaScript. You don't have to buy or download a thing. The general-purpose core of the language is embedded in all browsers. Some browsers have much more. JavaScript gives HTML designers a programming tool. JavaScript can add dynamic text to an HTML page. JavaScript can react to events like the clicking of the mouse. JavaScript can read and write HTML elements. With JavaScript you can control the HTML, the browser and the DOM (Document Object Model). These are just a few of the things you can do with JavaScript.

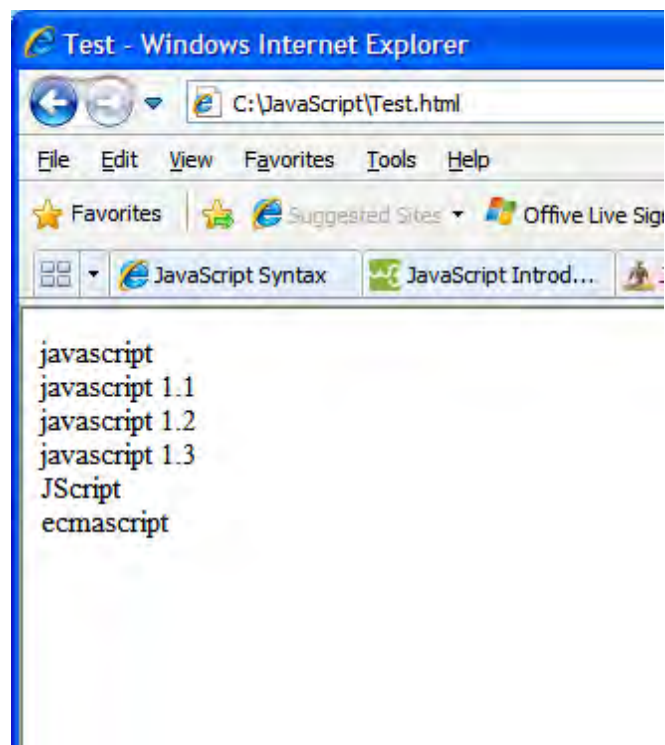
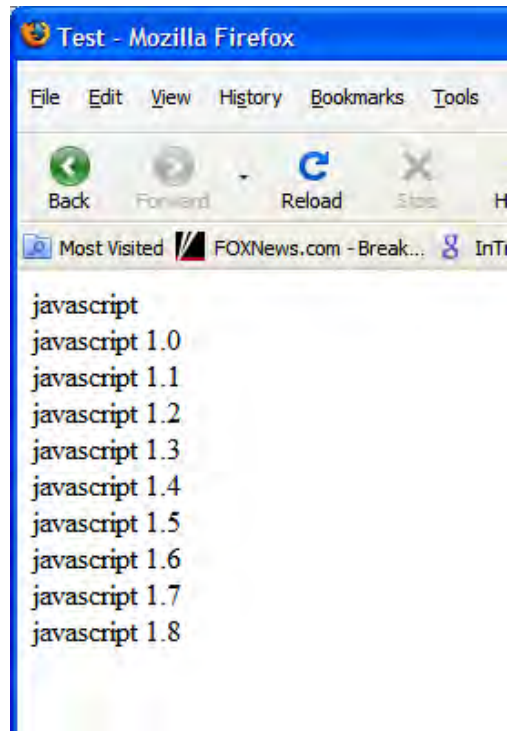
## Versions

There are many versions of JavaScript. JavaScript versions go from 1.0 to 1.9. I haven't found any browsers that support version 1.9 yet. One report, dated 06/18/2009, showed that 47% of the browsers support version 1.8, 36.6% support version 1.3 and 13.4% support version 1.7. Another report, dated 12/08-05/09, showed 73% support version 1.5, 17% support version 1.8 and 9% support version 1.7. Microsoft has its version called JScript which goes from versions 3.0 to 5.8. Internet Explorer 8 is supposed to support version 5.8. Microsoft also has Jscript.net and a new Jscript 8.0. There is also ECMAScript, which is up to version 5. It has not been approved as of this printing. You can write your script for a version but some browsers may not support that version. You can write a script to check what versions your browser supports. I found that Google Chrome 2.0 and Mozilla Firefox 3.0 supported the most versions.

Here is the script:

```
9. <body>
10. <script language="javascript">
11. document.write("javascript<br />")
12. </script>
13. <script language="javascript1.0">
14. document.write("javascript 1.0<br />")
15. </script>
16. <script language="javascript1.1">
17. document.write("javascript 1.1<br />")
18. </script>
19. <script language="javascript1.2">
20. document.write("javascript 1.2<br />")
21. </script>
22. <script language="javascript1.3">
23. document.write("javascript 1.3<br />")
24. </script>
25. <script language="javascript1.4">
26. document.write("javascript 1.4<br />")
27. </script>
28. <script language="javascript1.5">
29. document.write("javascript 1.5<br />")
30. </script>
31. <script language="javascript1.6">
32. document.write("javascript 1.6<br />")
33. </script>
34. <script language="javascript1.7">
35. document.write("javascript 1.7<br />")
36. </script>
37. <script language="javascript1.8">
38. document.write("javascript 1.8<br />")
39. </script>
40. <script language="javascript1.9">
41. document.write("javascript 1.9<br />")
42. </script>
43. <script language="JScript">
44. document.write("JScript<br />")
45. </script>
46. <script language="ecmascript">
47. document.write("ecmascript<br />")
48. </script><br>
49. </body>
```

## Some browsers:



## What do you need?

You don't need to know HTML. We will use some HTML and it would be nice for you to research HTML. You don't need to download or install anything. Everybody is using a web browser and JavaScript is supported by your browser. Some versions may not be supported by your browser. It would be nice if you had an HTML editor. Nvu is a nice free HTML editor. You don't need an HTML editor. You can create HTML/JavaScript documents with Notepad, WordPad or an HTML editor. All of the examples in this course were created in Notepad. If they have line numbers, it is because it is being displayed through an HTML editor to help explain the script.

### <script> tag

The script tag is where you tell the browser that you are going to use JavaScript. You can use any of these but some browsers do not support all of them.

```
<script language="javascript">
```

```
<script type="text/javascript">
```

```
<script type="application/ecmascript">
```

Most browsers will support the first two. Some programmers like to use both of the first two.

```
<script type="text/javascript" language="javascript">
```

I found most browsers support, `<script language="javascript">`

You must end your script with an end tag.

```
</script>
```

JavaScript is case sensitive so sometimes your script doesn't work because you didn't capitalize a letter. In JavaScript you can use single quotes or double quotes but they have to be in pairs.

## Blank HTML

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<meta content="text/html; charset=ISO-8859-1"
http-equiv="content-type">
<title></title>
<script language="javascript">
<!--

//-->
</script>
</head>
<body>
<script language="javascript">
<!--

//-->
</script>
<br>
</body>
</html>
```

JavaScript can go in the head or body section of an HTML document. It can go in both the head and the body. The script goes between `<!--` and `//-->` and it will hide your script from old browsers that don't support JavaScript. The `<!--` and `//-->` are how you comment in HTML so the old browser will see it as a comment only. You can copy this into Notepad and use it for all the examples. Single line comments in JavaScript start with `//`. Multiple line comments in JavaScript start with `/*` and end with `*/`.

JavaScript has:

- Functions
- Statements
- Operators
- Constants
- Objects
- Methods
- Properties
- Events

We will cover some of most of these. We will cover some statements, operators, objects, methods, properties and events.

## Variables

A variable is a named space to store values. JavaScript allows number, string, Boolean and object data types. Our first statement is **var**. It declares a variable and can also assign a value. It is optional outside of a function. Variable names are case sensitive so x and X are two different variables. Variable names must start with a letter or underscore.

```
<script type="text/javascript">
<!--
var _mon;
var name;
//-->
</script>
```

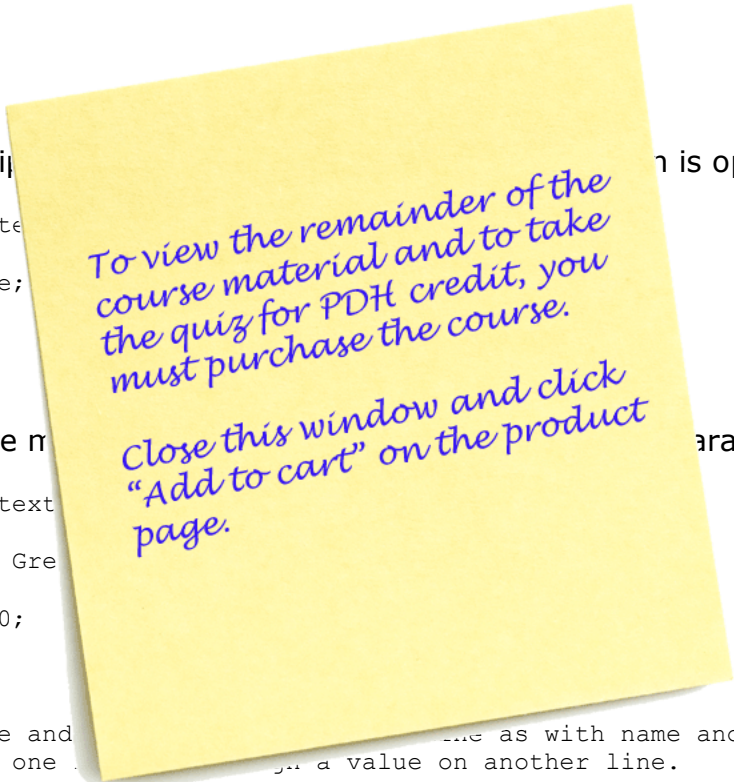
Notice, the script type="text/javascript" is optional.

```
<script type="text/javascript">
<!--
var mname, name;
//-->
</script>
```

You can declare multiple variables on one line separated by a comma.

```
<script type="text/javascript">
<!--
var name = "Al Green";
var money;
money = 2000.50;
//-->
</script>
```

You can declare and assign a value on one line as with name and Al Green or you can declare on one line and assign a value on another line.



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