



## Essential JavaScript

Section	Subject	Page
<b>One</b>	<b>JavaScript Introduction</b>	2
	– Some of its main uses	5
<b>Two</b>	<b>JavaScript Structure</b>	6
	– Basic Structure of JavaScript	7
	– Using document.write	13
	– Concatenating	15
	– Case sensitivity	16
	– Use of Escape Characters	17
	– document.write with Calculations	18
	– Use of JS with HTML  	21
	– Use of Alert	22
	– Commenting code in JS	24
<b>Three</b>	<b>Defining JavaScript Variables</b>	27
	– Introduction	28
	– Defining JavaScript Variables	29
	– Naming JavaScript Variables	30
	– Populating JS Variables	33
	– Flexibility of Datatypes	34
	– Difference between var and let	35
	– Another way to define variables	37
	– 'use strict'	38
	– Deleting variables	40
	– Constant variable	41
<b>Four</b>	<b>Manipulating Variables in JavaScript</b>	43
	– Introduction	44
	– Mathematics	46
	– Incrementing Values	50
	– Prefix and Postfix	52
	– Additional Assignments	55
	– Concatenation	56
<b>Five</b>	<b>Using Console to view errors</b>	57
	– Introduction	58
	– Switching on in Firefox	60
	– Switching on in Opera	61
	– Switching on in Internet Explorer	62
	– Switching on in Safari	64
	– Switching on in Chrome	66
	– Using Console for messages	68
	– Additional useful Console commands	69
	– <i>Exercise One</i>	71
<b>Six</b>	<b>Using JavaScript built in String Functions</b>	75
	– Introduction	76
	– length	77
	– toLowerCase and toUpperCase	78
	– substr and substring	79
	– slice	82
	– concat	84
	– repeat	85
	– search	86
	– replace	87
	– includes	88
	– Ascii conversions	89
	– indexOf	92
	– Other String Functions	93
	– Nesting Functions	94



## Essential JavaScript

Section	Subject	Page	
Seven	<b>Using built in Number Functions</b>	95	
	- Introduction	96	
	- toString	97	
	- toFixed	98	
	- Number	99	
	- parseInt	100	
	- List of Functions	101	
	- Constants	102	
	- Math.round	103	
	- Math.ceil	104	
	- Math.floor	105	
	- Math.random	106	
	- Math.min & Math.max	108	
	- Math.min & Math.max with String	109	
Eight	<b>Introduction to JavaScript Arrays</b>	114	
	- Introduction	115	
	- Numeric Arrays	116	
	- Populating Numeric Arrays	117	
	- Associative Arrays	120	
	- Populating Associative Arrays	121	
	- Multidimensional Arrays	124	
	- Three dimensional arrays	128	
	- Accessing Three Dimensional Arrays	129	
	- Alternative declaration of Arrays	130	
	- Multi-Dimensional Objects	131	
	Nine	<b>Using Array Functions</b>	132
		- Introduction	133
		- Using length()	134
- toString()		135	
- sort		136	
- sort descending		137	
- fill		138	
- indexOf		139	
- pop		140	
- push		141	
- shift		142	
- unshift		143	
- splice		144	
- split		147	
Ten	<b>Conditional JavaScript Statements</b>	160	
	- Conditional tests	161	
	- Comparison Operators	162	
	- If statement structure	164	
	- Grouping processes in an 'If' statement	166	
	- Alternative processing	168	
	- Multiple 'If' statements	169	



## Essential JavaScript

Section	Subject	Page
	- Testing Strings	173
	- Testing Booleans	179
	- Testing for nulls	181
	- Testing for undefined	182
	- Testing for Infinity	183
	- Testing for NaN	185
	- Multiple Condition tests (and)	186
	- Multiple Condition tests (or)	187
	- Multiple Condition tests (xor)	188
	- Nested If Conditions	189
	- Using Functions with Conditions	190
	- Checking Datatype	191
	- isArray	192
	- isFinite	193
	- isInteger	194
	- Date.parse	195
	- typeof	196
<b>Eleven</b>	<b>Using Ternary in Condition Testing</b>	200
	- Ternary	201
	- Ternary Variations	202
	- Nested Ternary	204
	- <i>Exercise Four</i>	205
<b>Twelve</b>	<b>Using Switch in Condition Testing</b>	208
	- Introduction	209
	- The Switch Syntax	210
	- Using Break with Switch	211
	- Using Default with Switch	213
	- Advanced Switch Testing	214
	- Mixing If Conditions with Switch	217
	- <i>Exercise Five</i>	219
<b>Thirteen</b>	<b>Looping through values in JavaScript</b>	222
	- Introduction	223
	- While Loops	224
	- Do .. While Loops	226
	- While Loops with Arrays	227
	- For Loops	228
	- For Loops with empty expressions	230
	- For Loops with more than one variable	232
	- Using Break to exit Loops	233
	- Advanced Breaking of Loops	234
	- Using Continue with Loops	240
	- For Of Loops with Arrays	243
	- Using Continue with Loops	240
	- Multidimensional Arrays with For Of	244
	- For In Loops with Arrays	246
	- Multidimensional Arrays with For In	247
	- Additional uses of break	249
	- Multidimensional Arrays with For Of	244
	- <i>Exercise Six</i>	251



## Essential JavaScript

Section	Subject	Page
<b>Fourteen</b>	<b>Using Debugger</b>	257
	- Introduction	258
	- Breakpoints	260
	- Removing Breakpoints	264
	- Breakpoints and variables	265
<b>Fifteen</b>	<b>Using Dates within JavaScript</b>	267
	- Introduction	268
	- Displaying a simple Date	269
	- Date() instances	270
	- Date() and milliseconds	272
	- Date() and date components	276
	- Date() and Strings	279
	- Date() and Time-zones	285
	- Working with Dates	288
	- setDate()	289
	- setMonth()	291
	- setFullYear()	294
	- Other Date set functions	296
	- Outputting and Testing Dates	297
	- getDate	298
	- getMonth	299
	- getFullYear	300
	- Formatting Date Output	302
	- Comparing Dates	303
	- Other Date Functions	304
	- Math.min and Math.max with Dates	306
	- <i>Exercise Seven</i>	308
	<b>Sixteen</b>	<b>Alerts, Confirm and Prompt</b>
- Introduction		312
- Using Alert		313
- Using Confirm		315
- Using Prompt		317
<b>Seventeen</b>	<b>Regular Expressions</b>	319
	- Introduction	320
	- Testing for 'Contains' within a String	323
	- Starts or Ends using Line Anchors	324
	- Starts and Ends using Line Anchors (or)	326
	- Using the Dot (Any Character)	327
	- Using {Intervals}	329
	- Using Character Lists []	331
	- Using Character Lists to exclude matches	334
	- Using Escape Sequences	335
	- Using the Question Mark (Optional)	337
	- Using the Plus sign (Mandatory)	339
	- Using the Star sign (Optional)	340
	- Backreferencing	341
	- Using match	343
	- Using search	345
	- Using replace	346
- Using exec	347	
- Using test	349	



## Essential JavaScript

Section	Subject	Page
Eighteen	– <i>Exercise Eight</i>	350
	<b>JavaScript Functions</b>	354
	– Introduction	355
	– Rudimentary Functions	356
	– Function Positioning (Hoisting)	358
	– Passing Parameters to Functions	359
	– Passing Multiple Parameters	361
	– Defaulting Parameters in Functions	363
	– Returning Values	364
	– Returning Values in an Array	366
	– The scope of Variables	367
	– Functions using arguments	370
	– Self-Invoking Functions	373
	– Dynamic Function Calls	375
	– Calling other Functions within page	377
	– Calling Functions from files	382
	– Calling Functions using async	387
– Calling Functions using defer	388	
– JavaScript Expressions	389	
– Arrow Functions	391	
Nineteen	<b>Using forEach with Arrays</b>	394
	– Introduction	395
	– forEach with numeric Arrays	396
	– <i>Exercise Nine</i>	397
Twenty	<b>Document Object Model</b>	402
	– Introduction	403
Twenty One	<b>Using innerHTML</b>	408
	– Introduction	409
	– Using innerHTML	411
	– Using href	413
	– Multiple innerHTML	414
	– Using style	415
	– Images	417
	– innerHTML and Arrays	419
	– document.getElementById	420
	– document.getElementsByTagName	421
	– document.getElementsByClassName	423
	– parentNode / parentElement	427
	– <i>Exercise Ten</i>	428
	Twenty Two	<b>HTML Dynamic Elements</b>
– Introduction		431
– setAttribute		436
– Image		438
– Ordered List		439
– Select		442
– Style		443
– Miscellaneous		445
– insertBefore		446
– removeChild		447
– cloneNode		448
– <i>Exercise Eleven</i>		451



## Essential JavaScript

Section	Subject	Page
Twenty Three	<b>Using HTML events</b>	455
	– Introduction	456
	– Mouse Events	458
	– Keyboard Events	469
	– In-line JavaScript	474
	– Bubbling and Capturing	476
	– Event.stopPropagation	479
	– addEventListener	481
	– removeEventListener	484
	– attachEvent	485
	– <i>Exercise Twelve</i>	486
Twenty Four	<b>JavaScript Cookies</b>	490
	– Introduction	491
	– Creating Cookies in JavaScript	492
	– Expiring Cookies in JavaScript	494
	– Other Cookie settings in JavaScript	496
	– Viewing Cookies in JavaScript	497
	– Deleting Cookies in JavaScript	500
Twenty Five	<b>JavaScript Timer</b>	502
	– Introduction	503
	– setTimeout	505
	– clearTimeout	506
	– setInterval	507
	– Countdown example	508
	– <i>Exercise Thirteen</i>	509
Twenty Six	<b>JavaScript Environment</b>	512
	– Introduction	513
	– screen	514
	– navigator	516
	– navigator (Geolocation)	519
	– location	522
	– location.assign	526
	– location.replace	527
	– location.reload	528
	– history	529
Twenty Seven	<b>JavaScript Window</b>	531
	– Introduction	532
	– Open	533
	– Close	537
	– Attributes	538
	– Closed	539
	– Opener	540
	– localStorage	541
	– sessionStorage	543
	– Sizes and locations	545
	– Movement	549
	– Miscellaneous	551
	– Attributes	552
	– Methods	553
– <i>Exercise Fourteen</i>	554	



## Essential JavaScript

Section	Subject	Page
Twenty Eight	<b>JavaScript Exceptions</b>	557
	- Introduction	558
	- Exception Syntax	559
	- The 'try' and 'catch'	560
	- Standard Exceptions	563
	- RangeError	564
	- ReferenceError	565
	- SyntaxError	566
	- TypeError	567
	- URIError	568
	- The 'throw'	569
	- Re-throwing Exceptions	571
	- Finally	573
	- Ducking the throw	574
Twenty Nine	<b>JavaScript Objects</b>	576
	- Introduction	577
	- Defining Objects	579
	- Updating Objects	581
	- Amending Objects	582
	- Looping Objects	583
	- Using Standard Methods	585
	- Defining Methods	586
	- Changing Methods	590
	- Calling Methods	591
	- Constructors	593
	- Prototype	603
	- <i>Exercise Fifteen</i>	605
Thirty	<b>HTML Forms and JavaScript</b>	609
	- Introduction	610
	- Input Field	611
	- Input Field variations	612
	- Button	613
	- Input Field Validation using document.forms	614
	- Input Field Focus	615
	- Tab Index	616
	- Alternatives to using Alert	617
	- Checkboxes	622
	- Radio	623
	- Option	629
	- Dynamic Option	632
- TextArea	637	
- Submitting the Form	639	
Thirty One	<b>Communication between JS and PHP</b>	644
	- Introduction	645
	- Calling JavaScript from PHP	646
	- Passing value back from JS	649
	- <i>Exercise Sixteen</i>	651