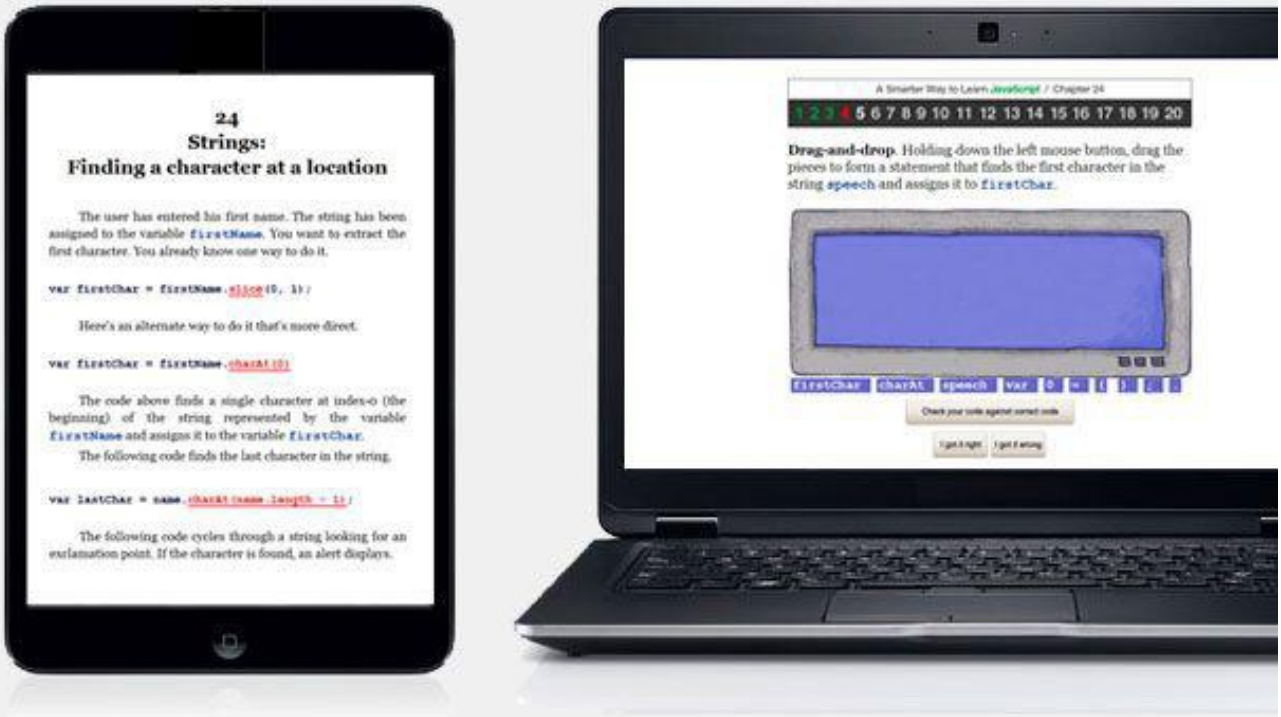
A Smarter Way to Learn JavaScript

The new approach that uses technology to cut your effort in half



1 Read a 10-minute chapter of this book to get each concept.

2 Code for 20 minutes at ASmarterWayToLearn.com to own the skill. (It's free.)

Mark Myers

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Chapters

1. Alerts
2. Variables for Strings
3. Variables for Numbers
4. Variable Names Legal and Illegal
5. Math Expressions: familiar operators
6. Math Expressions: unfamiliar operators
7. Math Expressions: eliminating ambiguity
8. Concatenating text strings
9. Prompts
10. *if* statements
11. Comparison operators
12. *if...else* and *else if* statements
13. Testing sets of conditions
14. *if* statements nested
15. Arrays
16. Arrays: adding and removing elements
17. Arrays: removing, inserting, and extracting elements
18. *for* loops
19. *for* loops: flags, Booleans, array length, and breaks
20. *for* loops nested
21. Changing case
22. Strings: measuring length and extracting parts
23. Strings: finding segments
24. Strings: finding a character at a location
25. Strings: replacing characters
26. Rounding numbers
27. Generating random numbers
28. Converting strings to integers and decimals
29. Converting strings to numbers, numbers to strings
30. Controlling the length of decimals
31. Getting the current date and time
32. Extracting parts of the date and time
33. Specifying a date and time
34. Changing elements of a date and time
35. Functions
36. Functions: passing them data
37. Functions: passing data back from them
38. Functions: local vs. global variables
39. *switch* statements: how to start them
40. *switch* statements: how to complete them

41. *while* loops
42. *do...while* loops
43. Placing scripts
44. Commenting
45. Events: link
46. Events: button
47. Events: mouse
48. Events: fields
49. Reading field values
50. Setting field values
51. Reading and setting paragraph text
52. Manipulating images and text
53. Swapping images
54. Swapping images and setting classes
55. Setting styles
56. Target all elements by tag name
57. Target some elements by tag name
58. The DOM
59. The DOM: Parents and children
60. The DOM: Finding children
61. The DOM: Junk artifacts and nodeType
62. The DOM: More ways to target elements
63. The DOM: Getting a target's name
64. The DOM: Counting elements
65. The DOM: Attributes
66. The DOM: Attribute names and values
67. The DOM: Adding nodes
68. The DOM: Inserting nodes
69. Objects
70. Objects: Properties
71. Objects: Methods
72. Objects: Constructors
73. Objects: Constructors for methods
74. Objects: Prototypes
75. Objects: Checking for properties and methods
76. Browser control: Getting and setting the URL
77. Browser control: Getting and setting the URL another way
78. Browser control: Forward and reverse
79. Browser control: Filling the window with content
80. Browser control: Controlling the window's size and location
81. Browser control: Testing for popup blockers
82. Form validation: text fields

83. Form validation: drop-downs
84. Form validation: radio buttons
85. Form validation: ZIP codes
86. Form validation: email
87. Exceptions: try and catch
88. Exceptions: throw
89. Handling events within JavaScript

How I propose to cut your effort in half by using technology.

When you set out to learn anything as complicated as JavaScript, you sign up for some heavy cognitive lifting. If I had to guess, I'd say the whole project of teaching yourself a language burns at least a large garden-cart load of brain glucose. But here's what you may not realize: When you teach yourself, your cognitive load doubles.

Yes, all the information is right there in the book if the author has done a good job. But learning a language entails far more than reading some information. You need to commit the information to memory, which requires some kind of plan. You need to practice. How are you going to structure that? And you need some way to correct yourself when you go off-course. Since a book isn't the best way to help you with these tasks, most authors don't even try. Which means all the work of designing a learning path for yourself is left to you. And this do-it-yourself *meta*-learning, this struggle with the question of how to master what the book is telling you, takes more effort than the learning itself.

Traditionally, a live instructor bridges the gap between reading and learning. Taking a comprehensive course or working one-on-one with a mentor is still the best way to learn JavaScript if you have the time and can afford it. But, as long as many people prefer to learn on their own, why not use the latest technology as a substitute teacher? Let the book lay out the principles. Then use an interactive program for memorization, practice, and correction. When the computer gets into the act, you'll learn twice as fast, with half the effort. It's a smarter way to learn JavaScript. It's a smarter way to learn anything.

And as long as we're embracing new technology, why not use all the tech we can get our hands on to optimize the book? Old technology—i.e. the paper book—has severe limitations from an instructional point of view. New technology—i.e. the ebook—is the way to go, for many reasons. Here are a few:

Color is a marvelous information tool. That's why they use it for traffic lights. But printing color on paper multiplies the cost. Thanks to killer setup charges, printing this single word —color—in a print-on-demand book adds thirty dollars to the retail price. So color is usually out, or else the book is priced as a luxury item. With an ebook, color is free.

Paper itself is expensive, so there usually isn't room to do everything the author would like to do. A full discussion of fine points? Forget it. Extra help for the rough spots? Can't afford it. Hundreds of examples? Better delete some. But no such limitation applies to an ebook. What do an extra hundred digital pages cost? Usually nothing.

When a book is published traditionally, it may take up to a year for the manuscript to get into print. This means there isn't time for extensive testing on the target audience, or for the revisions that testing would inevitably suggest. And once the book is in print, it's a big,

expensive deal to issue revised editions. Publishers put it off as long as possible. Reader feedback usually doesn't lead to improvements for years. An ebook can go from manuscript to book in a day, leaving lots of time for testing and revision. After it's published, new editions with improvements based on reader feedback can come out as often as the author likes, at no cost.

With all this going for them, is there any doubt that all the best instructional books are going to be ebooks? And would anyone deny that the most helpful thing an author can do for you, in addition to publishing a good book electronically, is to take on the whole teaching job, not just part of it, by adding interactivity to help you with memorization, practice, and correction?

Here, then, is how I propose to use current technology to help you learn JavaScript in half the time, with half the effort.

- **Cognitive portion control**. Testing showed me that when they're doing hard-core learning, even strong-minded people get tired faster than I would have expected. You may be able to read a novel for two hours at a stretch, but when you're studying something new and complicated, it's a whole different ballgame. My testing revealed that studying new material for about ten minutes is the limit, before most learners start to fade. But here's the good news: Even when you've entered the fatigue zone after ten minutes of studying, you've still got the mental wherewithal to practice for up to thirty minutes. Practice that's designed correctly takes less effort than studying, yet teaches you more. Reading a little and practicing a lot is the fastest way to learn.
- **500 coding examples** that cover every aspect of what you're learning. Examples make concepts easy to grasp and focus your attention on the key material covered in each chapter. Color cues embedded in the code help you commit rules to memory. Did I go overboard and put in more examples that you need? Well, if things get too easy for you, just skip some them.
- **Tested on naive users.** The book includes many rounds of revisions based on feedback from programming beginners. It includes extra-help discussions to clarify concepts that proved to be stumbling blocks during testing. Among the testers: my technophobe wife, who discovered that, with good instruction, she could code—and was surprised to find that she enjoyed it. For that matter, I got a few surprises myself. Some things that are simple to me turned out not to be not so simple to some readers. Rewriting ensued.
- **Free interactive coding exercises paired with each chapter—1,750 of them in all.** They're the feature that testers say helps them the most. No surprise there. According to the New York Times, psychologists "have shown that taking a test—say, writing down all you can remember from a studied prose passage—can deepen the memory of that passage better than further study." I would venture that this goes double when you're learning to code. After reading each chapter, go online and practice everything you learned. Each chapter ends with a link to its accompanying online exercises. Find an index of all the exercises at http://www.ASmarterWayToLearn.com/js/.