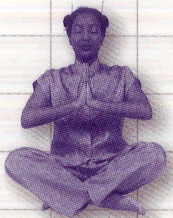
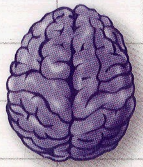
A Brain-Friendly Guide

Head First HTML5 Programming

A learner's guide to building web apps with JavaScript

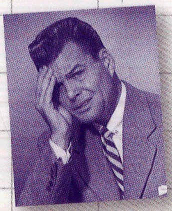


Learn the secrets of the HTML5 guru



Discover why everything your friends know about video is probably wrong

Load HTML5 and JavaScript straight into your brain



Avoid embarrassing browser support issues

Watch out for common browser pitfalls

O'REILLY®

Eric Freeman & Elisabeth Robson

Table of Contents (Summary)

Table of Contents (the real thing)

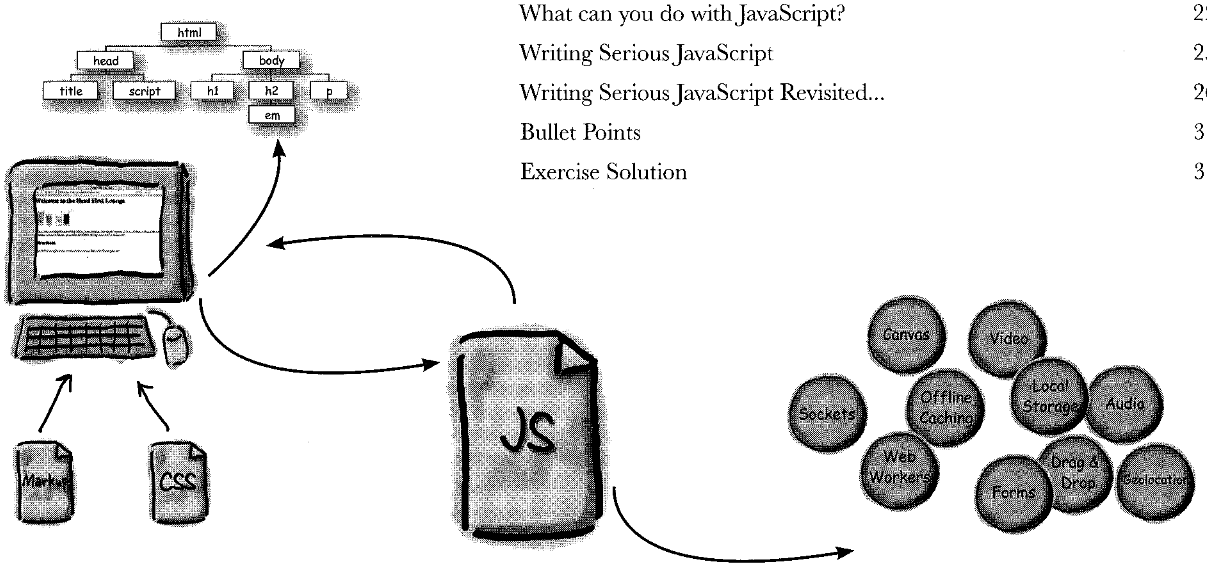
Intro

Your brain on HTML5 Programming. Here *you* are trying to *learn* something, while here your *brain* is doing you a favor by making sure the learning doesn't *stick*. Your brain's thinking, "Better leave room for more important things, like which wild animals to avoid and whether naked snowboarding is a bad idea." So how *do* you trick your brain into thinking that your life depends on knowing HTML5 and JavaScript?

1

getting to know HTML5
Welcome to Webville

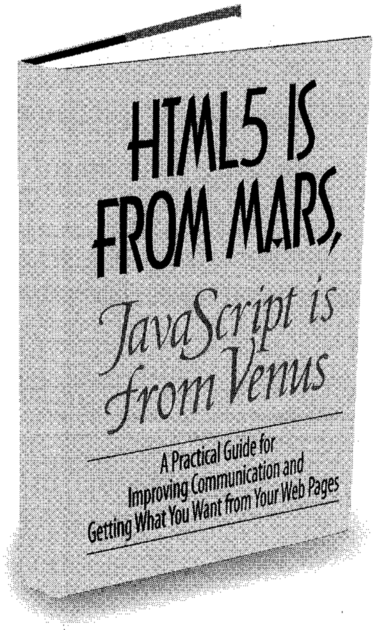
HTML has been on a wild ride. Sure, HTML started as a mere markup language, but more recently HTML's put on some major muscle. Now we've got a language tuned for building true web applications with local storage, 2D drawing, offline support, sockets and threads, and more. The story of HTML wasn't always pretty, and it's full of drama (we'll get to all that), but in this chapter, we're first going to go on a quick joyride through Webville to get sense for everything that goes into "HTML5." Come on, hop in, we're headed to Webville, and we're going to start by going from zero to HTML5 in 3.8 pages (flat).



2 introducing JavaScript and the DOM

A Little Code

JavaScript is going to take you to new places. You already know all about HTML markup (otherwise known as *structure*) and you know all about CSS style (otherwise known as *presentation*), but what you've been missing is JavaScript (otherwise known as *behavior*). If all you know about are structure and presentation, sure, you can create some great-looking pages, but they're still *just pages*. When you add behavior with JavaScript, you can create an interactive experience; or, even better, you can create full blown web applications. Get ready to add the most interesting and versatile skill in your web toolkit: JavaScript and programming!


HTML5 IS FROM MARS,
JavaScript is from Venus
A Practical Guide for Improving Communication and Getting What You Want from Your Web Pages

events, handlers and all that jazz

3 A Little Interactivity

You still haven't reached out to touch your user.

You've learned the basics of JavaScript but can you get interactive with your users? When pages respond to user input, they aren't just documents anymore, they're living, reacting applications. In this chapter you're going to learn how to handle one form of user input (excuse the pun), and wire up an old-fashioned HTML <form> element to actual code. It might sound dangerous, but it's also powerful. Strap yourself in, this is a fast moving to-the-point-chapter where we go from zero to interactive app in no time.

4 javascript functions and objects

Serious JavaScript

Can you call yourself a scripter yet? Probably—you already know your way around a lot of JavaScript, but who wants to be a scripter when you can be a programmer? It's time to get serious and take it up a notch—it's time you learn about **functions** and **objects**. They're the key to writing code that is more powerful, better organized and more maintainable. They're also heavily used across HTML5 JavaScript APIs, so the better you understand them the faster you can jump into a new API and start ruling with it. Strap in, this chapter is going to require your undivided attention...

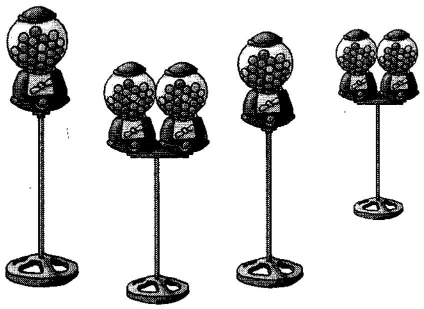
5 making your html location aware
Geolocation

Wherever you go, there you are. And sometimes knowing where you are makes all the difference (especially to a web app). In this chapter we're going to show you how to create web pages that are **location aware**—sometimes you'll be able to pin point your users down to the corner they're standing on, and sometimes you'll only be able to determine the area of town they're in (but you'll still know the town!). Heck, sometimes you won't be able to determine anything about their location, which could be for technical reasons, or just because they don't want you being so nosy. Go figure. In any case, in this chapter we're going to explore a JavaScript API: Geolocation. Grab the best location-aware device you have (even if it's your desktop PC), and let's get started.

6 talking to the web
Extroverted Apps

You've been sitting in your page for too long. It's time to get out a little, to talk to web services, to gather data and to bring it all back so you can build better experiences mixing all that great data together. That's a big part of writing modern HTML5 applications, but to do that you've got to *know how* to talk to web services. In this chapter we're going to do just that, and incorporate some data from a real web service right in your page. And, after you've learned how to do that you'll be able to reach out and touch any web service you want. We'll even fill you in on the hippest new lingo you should use when talking to web services. So, come on, you're going to use some more APIs, the communications APIs.

Watch out for the cliffhanger in this chapter!



7 bringing out your inner artist
The Canvas

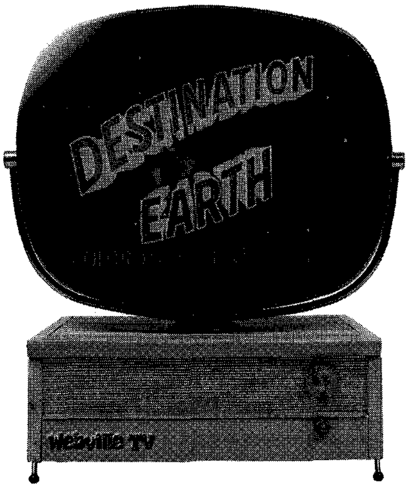
HTML's been liberated from being just a "markup" language. With HTML5's new canvas element you've got the power to create, manipulate and destroy *pixels*, right in your own hands. In this chapter we'll use the canvas element to bring out your inner artist—no more talk about HTML being all semantics and no presentation; with canvas we're going to paint and draw with color. Now it's *all* about presentation. We'll tackle how to place a canvas in your pages, how to draw text and graphics (using JavaScript of course), and even how to handle browsers that don't support the canvas element. And canvas isn't just a one-hit wonder; you're going to be seeing a lot more of canvas in other chapters in this book.

A new HTML5 startup is just waiting for you to get it off the ground!
TweetShirt.com, Strictly Confidential

8 not your father's tv

Video... with special guest star "Canvas"

We don't need no plug-in. After all, video is now a first-class member of the HTML family—just throw a <video> element in your page and you've got instant video, even across most devices. But video is *far more* than *just an element*, it's also a JavaScript API that allows us to control playback, create our own custom video interfaces and integrate video with the rest of HTML in totally new ways. Speaking of *integration*... remember there's that *video and canvas connection* we've been talking about—you're going to see that putting video and canvas together gives us a powerful new way to *process video* in real time. In this chapter we're going to start by getting video up and running in a page and then we'll put the JavaScript API through its paces. Come on, you're going to be amazed what you can do with a little markup, JavaScript and video & canvas.

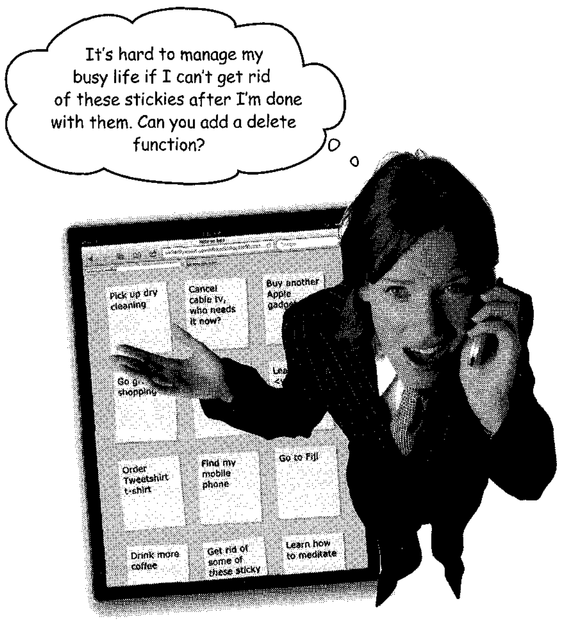


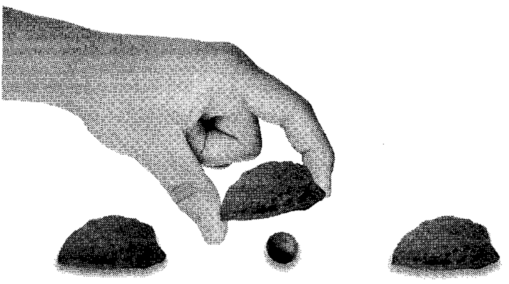
Tune in to Webville TV...

9 storing things locally

Web Storage

Tired of stuffing your client data into that tiny ~~closet~~ cookie? That was fun in the 90s, but we've got much bigger needs today with web apps. What if we said we could get you five megabytes on every user's browser? You'd probably look at us like we were trying to sell you a bridge in Brooklyn. Well, there's no need to be skeptical—the HTML5 Web storage API does just that! In this chapter we're going to take you through everything you need to store any object locally on your user's device and to make use of it in your web experience.


It's hard to manage my busy life if I can't get rid of these stickies after I'm done with them. Can you add a delete function?
Pick up dry cleaning
Cancel cable tv, who needs it now?
Buy another Apple gadget
Go grocery shopping
Order Tweetshirt t-shirt
Find my mobile phone
Go to Fiji
Drink more coffee
Get rid of some of these sticky
Learn how to meditate

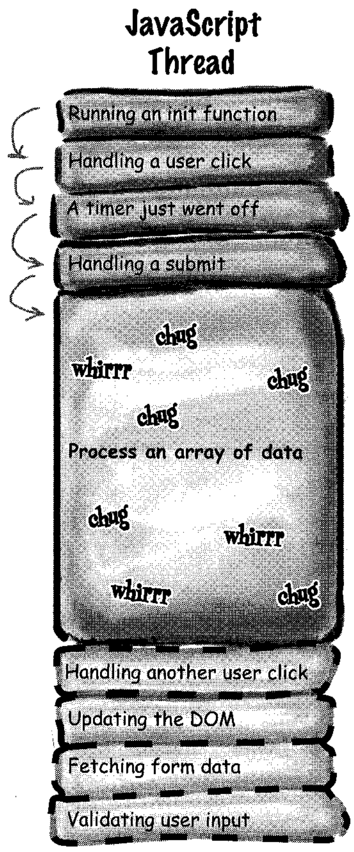


10

putting javascript to work

Web Workers

Slow script—do you want to continue running it? If you've spent enough time with JavaScript or browsing the web you've probably seen the "slow script" message. And, with all those multicore processors sitting in your new machine how could a script be running *too slow*? It's because JavaScript can only do one thing at a time. But, with HTML5 and Web Workers, *all that changes*. You've now got the ability to spawn *your own* JavaScript workers to get more work done. Whether you're just trying to design a more responsive app, or you just want to max out your machine's CPU, Web Workers are here to help. Put your JavaScript manager's hat on, let's get some workers cracking!



appendix: leftovers

We covered a lot of ground, and you're almost finished with this book.

We'll miss you, but before we let you go, we wouldn't feel right about sending you out into the world without a little more preparation. We can't possibly fit everything you'll need to know into this relatively small chapter. Actually, we *did* originally include everything you need to know about HTML5 (not already covered by the other chapters), by reducing the type point size to .00004. It all fit, but nobody could read it. So, we threw most of it away, and kept the best bits for this Top Ten appendix.