

HTML5

Foundations

Matt West



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HTML5 Foundations

treehouse

Matt West



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About the Author

MATT WEST is a developer and entrepreneur who has a keen fascination with exploring new ways that technology can be used to make our lives simpler. Currently residing just outside Northampton, England, Matt fell into web development after getting involved in a number of open-source projects in his spare time.

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For my father.

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Introduction

SOMETIMES IT'S DIFFICULT to remember a time before the World Wide Web. A time before we could find information about anything we desired by simply typing a few words into a search box on our computers, and these days even our mobile phones.

The web has come a long way since its humble origins in the research labs of academics. It has grown to be the single most valuable resource for information that the world has ever known. In doing so, it has created countless billionaires, sparked revolutions within countries throughout the world, and transformed education and science. The United Nations has even proposed that access to the Internet should be a basic human right.

HTML5 is the next step in the history of the web; it is the future. The new technologies introduced by HTML5 enable developers to create websites that are smarter, faster, and more secure than they have ever been before. The best thing about the Internet is that it is an open platform; anyone can build his or her own website. The barriers to entry in this industry are surprisingly low—and that's awesome.

The community surrounding the web industry is the best in the world. Of course, I may be slightly biased, but I really believe that statement is true. I don't know of any other industry where so many people in the community come together to help each other and push the web forward in new and innovative ways. Every day, I wake up and feel privileged to be part of it all. Now it is time for you to join us.

Who Should Read This Book?

This book is for anyone who wants to learn how to create his or her own website and how to use HTML5's exciting new technologies.

The book doesn't assume that you have any experience with programming in HTML, CSS, JavaScript, or any other language for that matter. If you do, that's a bonus, but you will learn everything you need to know to start building awesome websites with HTML5.

This is not a book to help you make the transition from older HTML standards. Everything is covered from the ground up in order to make sure that all the techniques you will learn are up to date. There are plenty of books for experienced developers—books that go deep into the inner workings of HTML5 technologies and have lengthy explanations on why technologies were developed in a certain way. This book is not one of them. Some parts require a bit of explanation, but for the most part, I won't bore you with the details.

If you already have some knowledge of web design, you will still find the content useful; after all, a lot has changed in HTML5. Some explanations in the early chapters may be a little more verbose than you require at times, so feel free to skip ahead if you find yourself reading about things you already know.

What You Will Learn

HTML5 encompasses a huge number of new technologies, loads more than could possibly be covered in a single book, and therefore I have chosen the most exciting and relevant technologies for you to learn about.

Part 1 of the book, **Creating Web Pages with HTML5**, takes you through the basics of building web pages. It starts by introducing you to the tools of the trade and taking you through creating your first web pages with HTML5. You will learn about HTML elements and how to structure your web pages, as well as how to link multiple pages together to create websites. You will also cover the importance of web standards, validating your code, and testing your websites in multiple web browsers.

In part 2, **Dealing with Data**, you dive straight into working with web forms to collect data from your visitors. You will learn how to code a form and the various types of inputs that are available to you. You will also learn about input validations and how using them can help to ensure the quality of the data you capture.

Next you will learn about microdata and how to mark up your content so that search engines and other computer programs can easily find important information in your web pages.

Accessibility is an important topic when it comes to creating web pages. Unfortunately, not all visitors can enjoy the same great experience when using your website. You will learn about building web pages that are screen reader friendly and how to create designs that can be used by people with visual or motor impairments.

In part 3, **Enhancing Web Pages with HTML5 and JavaScript**, you start to get into some really exciting stuff, looking at how to embed video and audio into your web pages and how to create custom controls for them with JavaScript. You will also look at the LocalStorage and SessionStorage APIs and learn how to use them to store data on a user's computer.

Part 4, **Advanced HTML5 Technologies**, takes you even deeper, with GeoLocation and the Canvas API. GeoLocation is one of the most exciting new web technologies. You learn all about the GeoLocation API and how you can use it to make your website smarter.

The Canvas API enables you to draw objects directly in the browser. You'll learn how to draw various shapes and paths and how you can use this technology in your projects today.

That's a lot of content for you to cover, and so throughout the book you will be applying all your newfound knowledge in creating a real-world website for a fast-food chain, "Joe's Pizza Co." The final product will be a fully functional HTML5 website complete with promotional video, booking form, and a page that visitors can use to find their nearest store (making good use of the GeoLocation API, of course).

How to Use This Book

There is no particular order in which you should read this book. I rarely read computer books from cover to cover, so it would be foolish of me to assume that you will. It is often much more enjoyable to jump around to the chapters that are most interesting to you, so feel free to do so. You can always backtrack to a previous chapter if there is something that you don't quite understand.

That said, if you are completely new to the world of web design I recommend reading through Part 1 first so that you can obtain the basic foundations needed to move forward. After that, the book is structured so that you can dip in and out of different chapters as you please. This way you can easily refer back to things in the future when you are building websites out in the wild.

Readers that have some knowledge of programming websites will find that many of the new HTML5 semantic

elements can be found in among the “older” ones in the first few chapters, so stay alert! You don’t want to miss anything.

Some chapters contain fairly large chunks of code for you to work with. If you don’t want to sit and type it all in to your computer (like a highly trained code-monkey), you can easily download all the code examples from the book’s website at <http://wiley.com/go/treehouse/html5foundations>. Once you have extracted the archive, you will find all the code examples neatly placed in separate folders for each chapter, with subfolders for the specific exercises as you follow along.

Throughout the book, you will build a website for the fast-food chain, “Joe’s Pizza Co.” You will gradually add more and more features to the website as you move through the content of the book and learn about the technologies that enable them. If you decide to skip a chapter, you can easily download the code for that chapter from the book’s website to update your example files.

Using This Book with Treehouse



Just to be clear, you don’t have to be a Treehouse member to use this book. However, the online videos at teamtreehouse.com do supplement the content quite nicely. When there is a video that covers the same content that is being covered in the book, you will see the Video icon in the margin and a link to the relevant video. Viewing all the videos and completing badges is a good way of testing what you have learned in the book (and of showing off your new skills to others).

If you ever get stuck on a concept in the book, Treehouse has a great community of members who would be more

than happy to help you. You can find them in the official Treehouse members group on Facebook.

Ready to go? Let's get started.

part 1

Creating Web Pages with HTML5

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chapter one

Getting Started with HTML5

SO YOU'RE EAGER to start building a website? By the end of this chapter, you will have done just that!

You start by getting your computer primed for building websites. That means you're going to install a text editor and a lot of web browsers. I take you on a brief tour through some of the most popular text editors, web browsers, and developer tools so you can decide which ones you want to use.

Once you have your computer set up for building websites, you'll learn about HTML elements and attributes. These are the basic building blocks that make up web pages.

There are a few things that all good web developers should know. That said, toward the end of this chapter, you will learn how to validate the HTML code that you have been writing. You will also learn that your websites can sometimes behave differently depending on which browser they are being viewed in.

What is HTML?

Hyper Text Markup Language, or HTML, is the basic code that makes up the foundation of every website on the World Wide Web. HTML is used for marking up text and other page content, and for defining how a web page is structured.

A web page is made up of lots of content—text, images, even videos. Each of these pieces of content is marked up using HTML syntax (a collection of words and symbols that

can be understood by computer programs). HTML is also used to describe the structure of the page, defining each of the different sections it may have (such as a header, content area, and footer).

HTML is used to define the page content and how it is structured, but it is not responsible for how the page actually looks—the color, borders, and positioning of elements. That is a job for Cascading Style Sheets, or CSS, which you will look at briefly later in this book. There is also one other language that is commonly used when building websites. JavaScript is a programming language that is used in conjunction with HTML and CSS to build interactive features for web pages. Later in this book you will be using JavaScript to build custom playback controls for a video.

HTML is always evolving. The latest revision of HTML is HTML5, the subject of this book. The official specification for HTML5 outlines a large number of new features that enable web developers to create websites that are faster and smarter than those they could build using older versions of HTML. These new features include LocalStorage (which enables developers to store data on the user's computer) and HTML5 Video (that enables video playback in your web browser without needing a plug-in like Flash) as well as new interactive elements, such as date pickers and sliders.

The term HTML5 has become somewhat of a buzzword in recent years, used by clients, bosses, and developers alike to describe what is coming next in the journey of web technologies. Although this usage is common, it is not strictly accurate. HTML5 is just one part of a large number of standards that are collectively referred to as New Exciting Web Technologies (NEWT). Alongside HTML5, NEWT also encompasses things like WebGL (3D graphics in

the browser) and GeoLocation (finding a user's location). Although GeoLocation is not strictly part of HTML5, you will learn about it later in this book because it is so cool that I just couldn't leave it out.

Setting Up Your Tools

Before you can start building your own web pages, you first need to set up some tools. You likely have at least one browser and possibly a text editor already installed on your computer, but you'll want to widen your range of browsers and you'll need to add some specialist developer tools, too.

Browsers

Many different web browsers are available, and it is important that you test your website in all of the most popular ones in order to make sure that your website looks and behaves as you want it to. I recommend installing the latest version of each of the following five browsers (if they are available for your operating system):

Google Chrome



Google's web browser, Chrome, is known for being both fast and secure. It also boasts great support for the latest HTML5 and CSS3 technologies. Chrome has some great developer tools that you will be using later in this book to interact with the web pages that you create. Google Chrome also updates itself automatically whenever a newer version is available. You can download the latest version of Chrome at <http://www.google.com/chrome>.