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3D Game Programming for Kids

Create Interactive Worlds with JavaScript

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Create Interactive Worlds With JavaScript



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*For Greta, so that she knows she can do
anything.*

Introduction

Welcome to the world of programming!

I won't lie; it can be a frustrating world sometimes (it makes me cry at least once a week). But it's totally worth the pain. You get to make this world do whatever you want. You can share your world with others. You can build things that really make a difference.

This book that you hold in your eager hands is a great way to get started programming. It is chock-full of clear and understandable explanations. Best of all, we get to make some pretty cool games. This is going to be a blast.

How I Learned to Program

When I was a kid, I copied computer-program games out of books. This was a long time ago, so I bought books with nothing but programs, and typed them into computers.

When I first started doing it, I had no idea what I was doing. Eventually, I started to recognize certain things that were done over and over, and I almost understood them.

I started to change things—little things at first—to see what happened. Then I started making bigger changes. Eventually I got pretty good at it. And after a long time, I could write my own programs. I hope that this book will let you do the same, but with one important difference: I'll explain what's going on so you won't have to guess quite as much.

What You Need for This Book

Not all web browsers can generate the cool 3D-gaming objects that we'll build in this book. To get the most out of the book, you should install the Google Chrome (<https://www.google.com/chrome/>) web browser on your computer. Other web browsers will work, but some of the exercises in this book rely on features available only in Google Chrome. One browser that will definitely *not* work with the exercises is Microsoft Internet Explorer.

For most of the exercises in the book, any computer with Google Chrome installed will be sufficient. Later exercises that make use of interesting lighting, shadows, and 3D materials will require a computer that supports WebGL. You can test your computer’s capabilities by visiting the Get WebGL site (<http://get.webgl.org/>). Don’t worry much about WebGL; you’ll be able to do a ton of programming even if your computer can’t handle the advanced 3D graphics.

What Is JavaScript?

There are many, many programming languages. Some programmers enjoy arguing over which is the *best*, but the truth is that all languages offer unique and worthwhile things.

In this book we’ll use the JavaScript programming language. We program in JavaScript because it’s the language of the Web. It is the only programming language all web browsers understand without needing any additional software. If you can program in JavaScript, not only can you make the kinds of games that you’ll learn in this book, but you can also program just about every website there is.

We’re not going to become experts in JavaScript.

We’ll cover just enough JavaScript to be able to program the games in this book. That is quite a lot of JavaScript—enough that you’ll be able to learn the rest without much difficulty.

How to Read This Book

You’ll see two kinds of chapters: project chapters and learning chapters. The project chapters start with “Project” just like [Chapter 1, Project: Creating Simple Shapes, on page ?](#). All the others are learning chapters.

If you want to learn programming the way I did, just read the project chapters and follow along with all the exercises. You’ll create pretty cool game characters and worlds to play in. You’ll make space simulations. You’ll make purple monsters. You’ll make all sorts of great stuff.

If you have questions about *why* the games are written the way they are, then read the learning chapters. We won’t go over *everything* about programming, but there should be enough to help you understand why we do what we do. These are the chapters that I wish I’d had when I was a kid.

Let’s Get Started!

Enough introduction—let’s jump right into programming!