Andrew Gahan

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3ds Max Modeling for Games

Insider's Guide to Game Character, Vehicle, and Environment Modeling

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Insider's Guide to Game Character, Vehicle, and Environment Modeling

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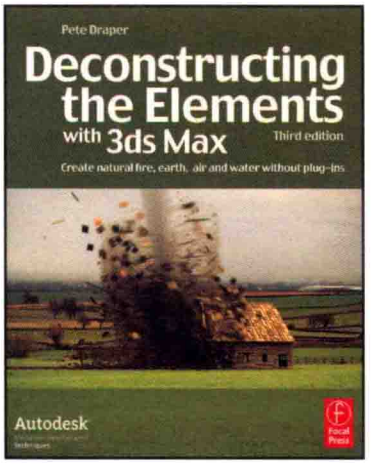

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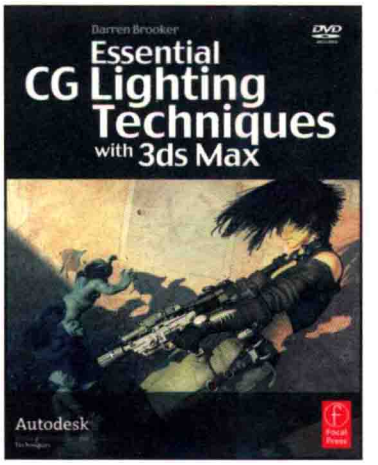

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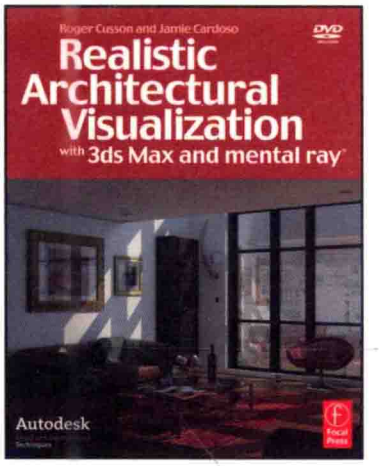

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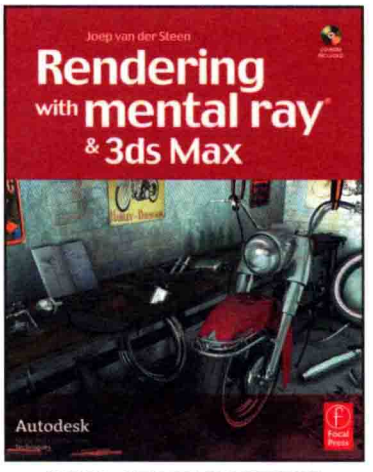

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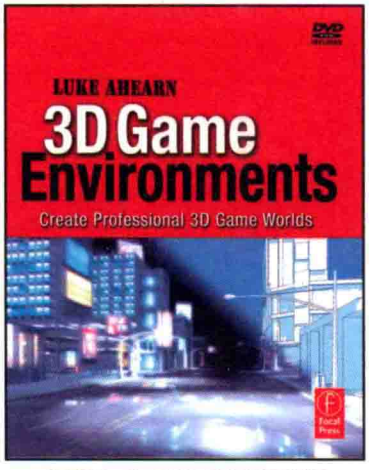

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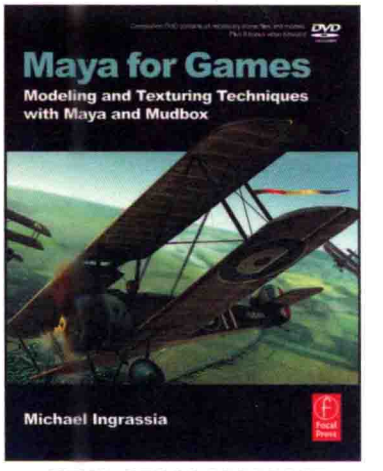

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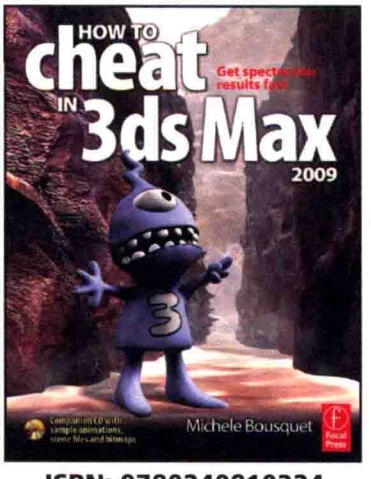

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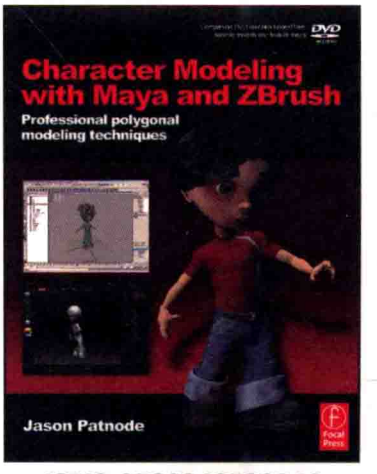

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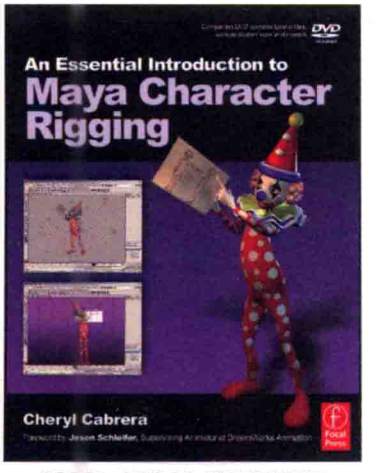

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3ds Max Modeling for Games

To Lisa and Robert

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Finally, thank you, for picking up the book.

Introduction

Why This Book Was Written

This book was written with one single goal in mind: to teach people who are relatively new to 3ds Max how to produce great results in the smallest amount of time possible.

The idea of writing a book came about when I had purchased yet another "how to use 3ds Max" book online without flicking through it first. I purchased the book because I was keen to start researching training for 3ds Max and how people are currently going about learning Max. I started to read through the book and was amazed at what they were teaching, but also overwhelmingly shocked at what they were getting the readers to produce—the end results were shocking, even laughable. I thought to myself, "If that's the way they are teaching how to use 3ds Max, I don't want to learn it."

It's great to know how to do something, but if what you ultimately produce is unusable, then what's the point?

A colleague of mine (Matt Southern) heard my ranting about how I felt about the book and told me that he had been contacted through the IGDA (Independent Game Developers Association) by a publisher looking for writers and that I should do something about it. So many months later, here it is.

As you become more experienced in modeling, you'll discover that there are many different methods of producing the same piece of work. All that I am offering in this book is one particular method for each tutorial: the one that I believe is either the fastest or the easiest or the one that I think produces the best results for the least amount of time.

About the Author

I'll keep this short and sweet, as I know your primary interest is how to model the scene on the cover and start making money as a professional modeler, not to hear all about me.

I started in the games industry in 1992 as a Junior Artist for Digital Image Design. They came to my college, and after seeing my graphic design work, offered me a summer job making games. I jumped at the chance, and without any portfolio or experience at all, started training on my first game. I progressed to Senior Artist, developing flight simulators and military training systems, until the studio was bought by Infogrammes

around 1998. I became Lead Artist when Infogrammes sold the studio to Rage, left and became Art Director at a small startup called Lightning Interactive. I switched again to join my old friends at Evolution Studios (Evolution was set up when Infogrammes bought D.I.D., with Martin Kenwright leaving and taking six people with him). I progressed through the ranks again at Evolution studios, becoming Art Manager on some of the later World Rally Championship games on PlayStation 2, and then to my current role as Producer/ Outsource Manager. At the time of this writing, I have completed work on MotorStorm™, Sony's PS3 launch title, and am currently working on MotorStorm 2 and a number of unannounced projects.

If you're interested, here is the list of games that I have helped develop:

- Robocop 3 (Amiga)
- TFX (PC)
- Inferno (PC)
- EF2000 (PC)
- F22—Air Dominance Fighter (PC)
- Total Air War (PC)
- Wargasm (PC)
- GTC Africa (PS2)
- World Rally Championship (PS2)
- WRC II Extreme (PS2)
- WRC 3 (PS2)
- WRC 4 (PS2)
- WRC 5—Rally Evolved (PS2)
- MotorStorm (PS3)
- Pursuit Force 2 (PS2)
- MotorStorm 2 (PS3)

About the Book

There is so much information crammed into just one book, so I have had to keep it as concise as possible. I cover only what you need to complete each tutorial and nothing else. This book is designed to get you up to speed as quickly as possible producing great artwork and is not designed to teach you how to use all aspects of 3ds Max. If you're looking for a book to teach you the ins and outs of Max, then there are plenty to choose from. Personally, I'd rather keep my hard-earned cash and press the F1 key—the built-in help can show you all the functions you'll need to get started.

The book is arranged over nine chapters, starting from getting to grips with the basics, moving onto some low-poly modelling, and culminating into a couple of fairly advanced builds. I've arranged the content of every chapter to be part of a similar theme to enable you to use most of the assets that you learn to build the final showpiece scene at the end. I realize that this approach is slightly limiting, but I decided that it would be best to teach you to model a number of things in the same style rather than a whole load of different things in different styles, just for consistency.

About the Contributors

Here are the guest writers, in their own words.

David Wilson

Over the last three years, I have been involved in the production of Motor Storm™ at Evolution Studios, a critically acclaimed game that has been celebrated for its gameplay and graphical excellence. I have significant next-generation experience and the work I have produced in recent years is the current benchmark for real-time graphics in the games industry.

I have also worked remotely as a freelance artist for clients internationally, building assets for games such as Need for Speed Underground.

I am currently using my game production experience on a BA (Honors) undergraduate degree course in Computer Games Modelling and Animation at the University of Derby, UK. I am enjoying the opportunity for working with people who have raw enthusiasm about games and are at the beginning of their journey in games development. I want to shape the way that students understand games and develop the relevant skill sets needed by the next generation of artists.

David Griffiths

I have been in the games industry now for over ten years. I graduated from Blackpool & The Fylde College (part of Lancaster University) in the UK with a degree in Technical Illustration. I started my career in the automotive industry, working freelance on site for a company called I.V.M. in Germany. I moved naturally into games, starting out with flight simulators. Some of my notable roles in the games industry have been working as a Lead Artist for Pandemic Studios in Santa Monica, California, when I worked on Star Wars: The Clone Wars. On Clone Wars, I was able to add to the Star Wars Universe, where I designed the TX-130 Fighter Tank and the G.A.T. vehicles (amongst many others), which were used in other games, comics, story books, and have even been made into model kits. The Fighter Tank has a very strong fan base, which is cool. Mercenaries was another great game to work on for Pandemic and Lucas Arts; it hit every major console. I have also had the privilege to work on the smash PS3 hit MotorStorm.

Tom Painter

As a child, I would waste many a sunny day on my ZX spectrum and Amiga; by the time I was a teenager I had developed an addiction to Street Fighter 2 that was roughly equivalent to that of a bad drug habit. Encouraged by my father, I decided I would pursue a career in games.

After my studies, I got my first break in the games industry as a pixel artist working at Tiertex on Nintendo Game Boy Advance titles. When Tiertex dissolved, I joined Evolution Studios as an environment artist for the WRC series of games on the Playstation 2.

In 2005, I moved to Pandemic Studios in Australia to work on Destroy All Humans! 2. I changed roles to become a character artist working on Saboteur and two top-secret titles in progress (project B and project Q).

Now it's 2008 and I've just founded Big Man Production, a specialist-character production company working for clients in the videogame and advertising industries.

I love working in 3D, because the job never gets boring—there's always something new to learn, or new ideas to implement.

Let's get started!

Contents

Chapter 1

Low-Poly Asset 1 (30-minute tutorial)

Introduction to Modeling

This first tutorial is designed to get complete beginners up to speed on the basics of modeling using primitive objects and applying textures in the simplest way. In the games industry, we lay out the textures in a slightly different way than in this tutorial. You'll learn that technique in Chapter 2, which covers more complex mapping techniques, but to get any complete beginners through their first complete object build, I have explained the most straightforward method first. This chapter also introduces you to some of the preferences, settings, and shortcuts that will speed up your modeling and give you better results.

Setting Up 3ds Max

To begin with we'll start with some basic settings for 3ds Max. Go to Customize > Preferences > Files. Enable Auto Backup, set number of Auto Backup files to 9, and set Backup Interval (minutes) to 10 (see Figure 1.1), then click OK.

Next we'll set up the units we'll be modeling in; these vary from studio to studio,

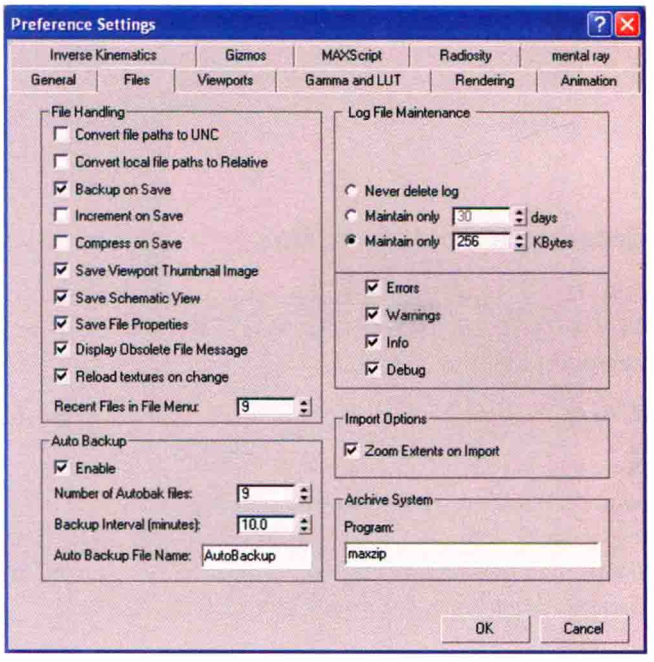

Figure 1.1

but in this book, one unit equals 1 cm. Go to Customize > Units setup ... and, select Metric, and then click OK.

We will now begin to model a simple object. First, we'll create a primitive object and scale it approximately to the correct dimensions. We will then apply texture maps to the object, UVW map it, and do some quick renders of it using 3ds Max's built-in scan-line renderer.

If you don't understand what I mean by "UVW map", search for the term using the new InfoCenter, or press F1 for help and search for the term "Unwrap UVW Modifier"—it explains everything you need to know about this. This goes for anything you don't understand or aren't sure of—just search through the help feature and it will all be explained to you. Feel free to browse the help too. You'll find lots of cool things that would otherwise take you many years to find out on your own.

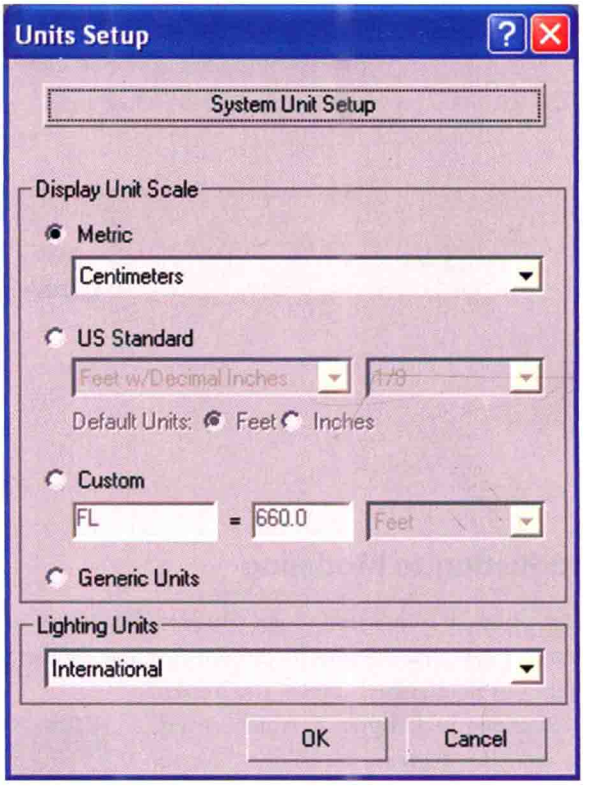

Figure 1.2

Creating a Cardboard Box

First we're going to create the box (Create > Standard Primitives > Box) and set the dimensions to 45 × 45 × 50. If your box is being displayed in wireframe in any of your viewports, just right-click in the viewport and press the F3 key.

With the box selected, right-click it and select Convert to editable mesh from the Quad Menu.

Now you need to save your progress. Always name your files with a relevant name to make it easier to find your assets later. As this is the first save file, we'll create a few folders to store all the files that you'll be working on while using this book. Go to save the file (File > Save as ...), create a folder called 3D Modeling for Games, then create another folder inside the one you've just created called Chapter 1. Now save your file as Cardboard box1.max or Chapter1_001.max.

We have completed the modeling part of this tutorial. Now we have to apply the texture maps to the faces of the box and our first asset will be complete.

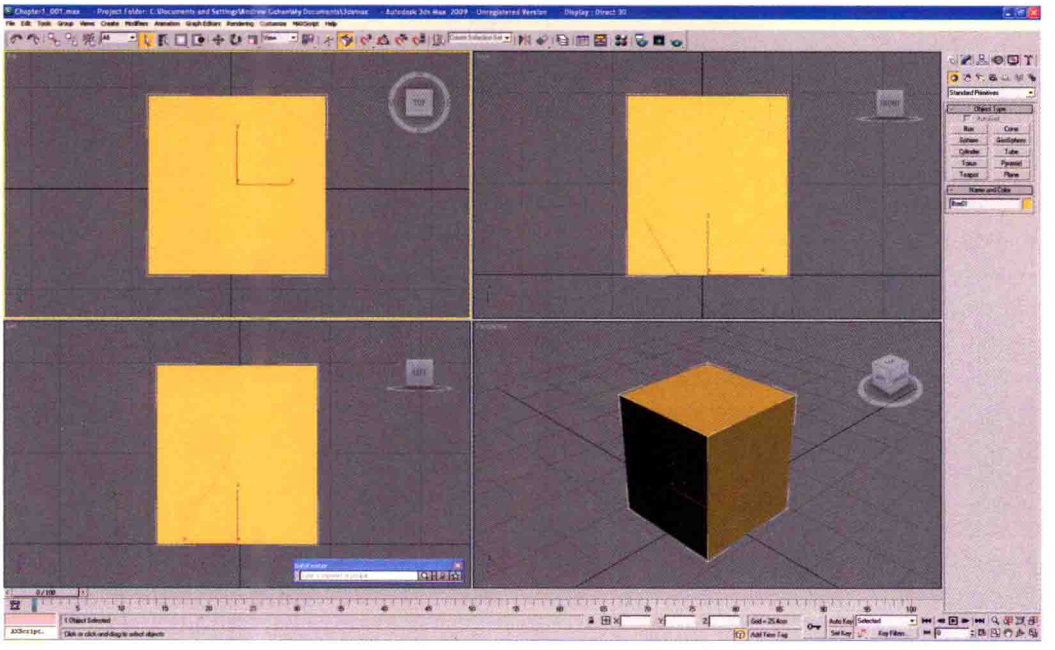

Figure 1.3

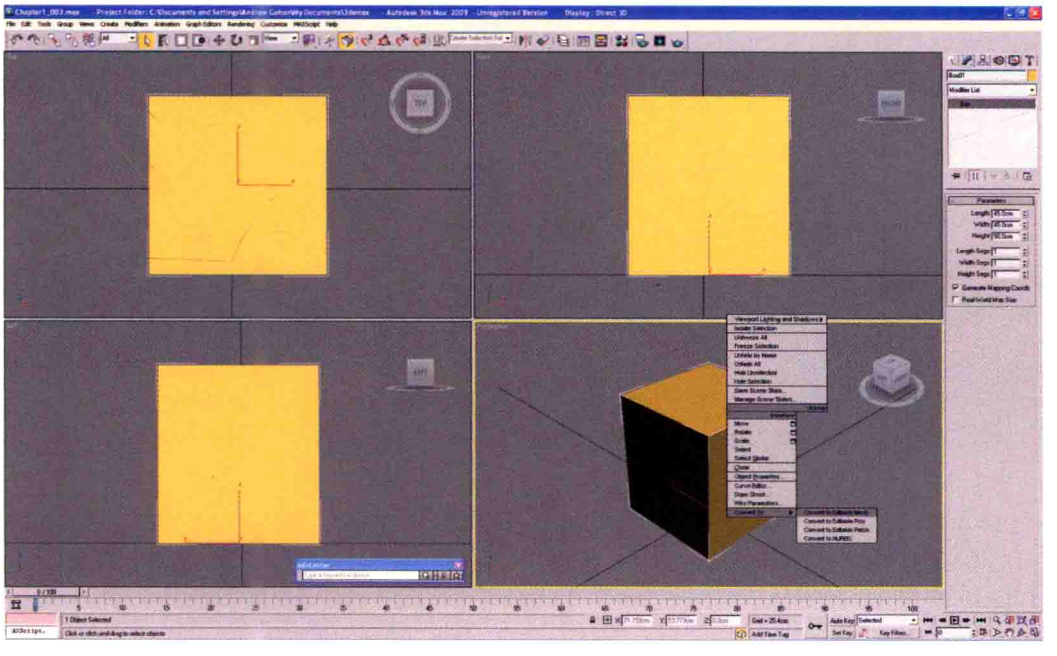

Figure 1.4

3ds Max Shortcuts

There are a few viewport configurations to help you to speed up the mapping of the box. Go to Modify, click the Configure Modifier Sets button, and select Show Buttons from the menu.

This action displays a set of buttons beneath the Modifier List rollout menu that can be configured to have all your most often used modifiers. Set the Total Buttons value to 10 and add Edit Mesh, UVW Map, and Unwrap UVW to the buttons, as we will use these modifiers the most in the first few chapters of the book. Do this by finding the modifier on the alphabetized list and drag it onto the button. To find a modifier on the list easily, just keep typing the first letter of it on the keyboard and you will cycle through all the modifiers with that letter (for example, press "E" for Edit Mesh). Then click OK to close the Configure Modifier Sets window.

Figure 1.5

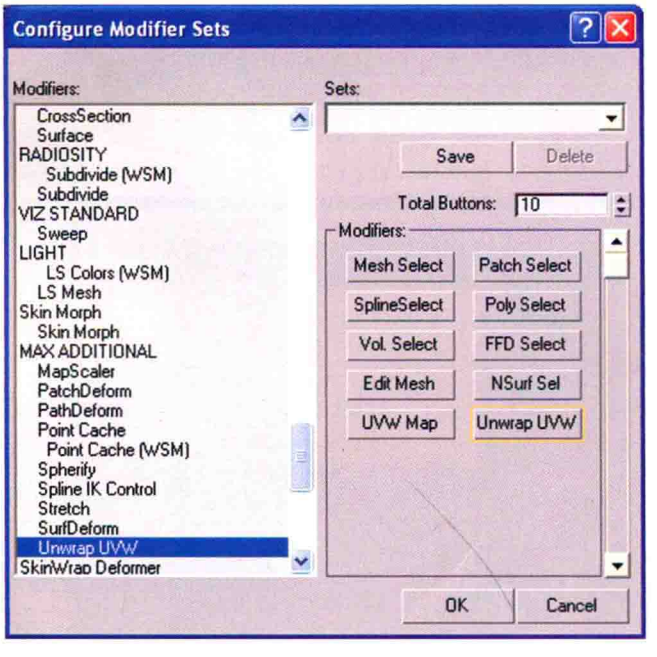

Figure 1.6

Texture Mapping Your Box

With your box still selected, go to Selection, click Element, and select the box. This should highlight all the faces (press F2 to toggle the highlighted selection).

Now click UVW Map from your newly created modifier set and check Box Mapping from the Parameters menu.

Next, right-click UVW Map in the Modifier stack and select Collapse All from the pop-up menu, then click Yes—you want to continue at the prompt, as we don't need to preserve the stack in this instance.

With your box still selected, click on the Material Editor (on the top toolbar) and change the standard material to a multi-sub object material as shown in Figure 1.8, clicking OK to discard the old material. If you keep the old material by accident, don't worry—it doesn't matter either way in this instance, as we are creating new ones.

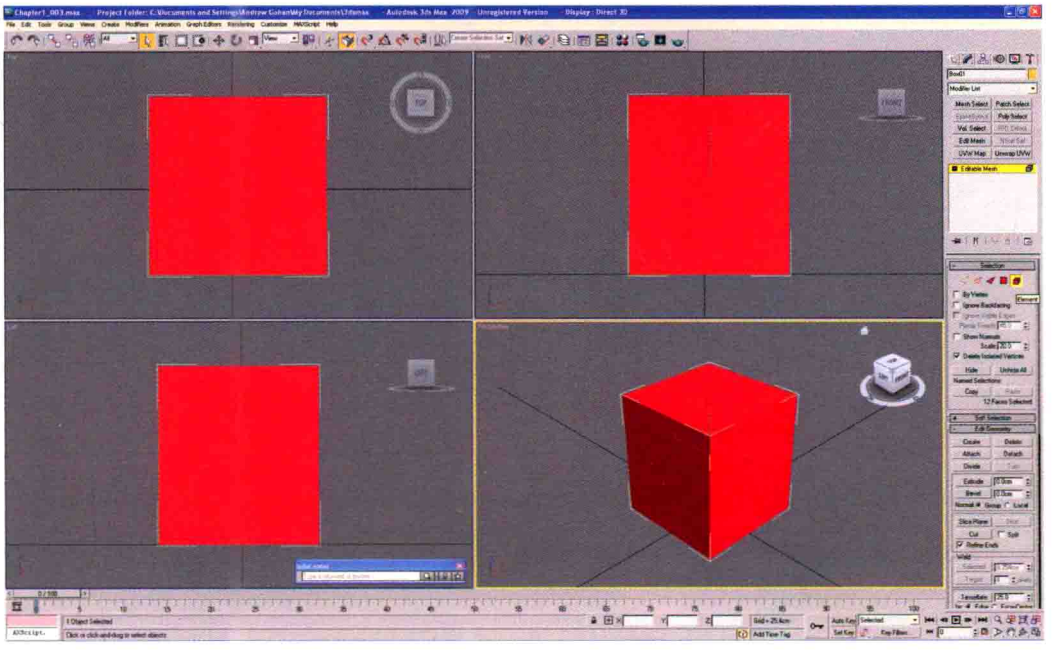

Figure 1.7

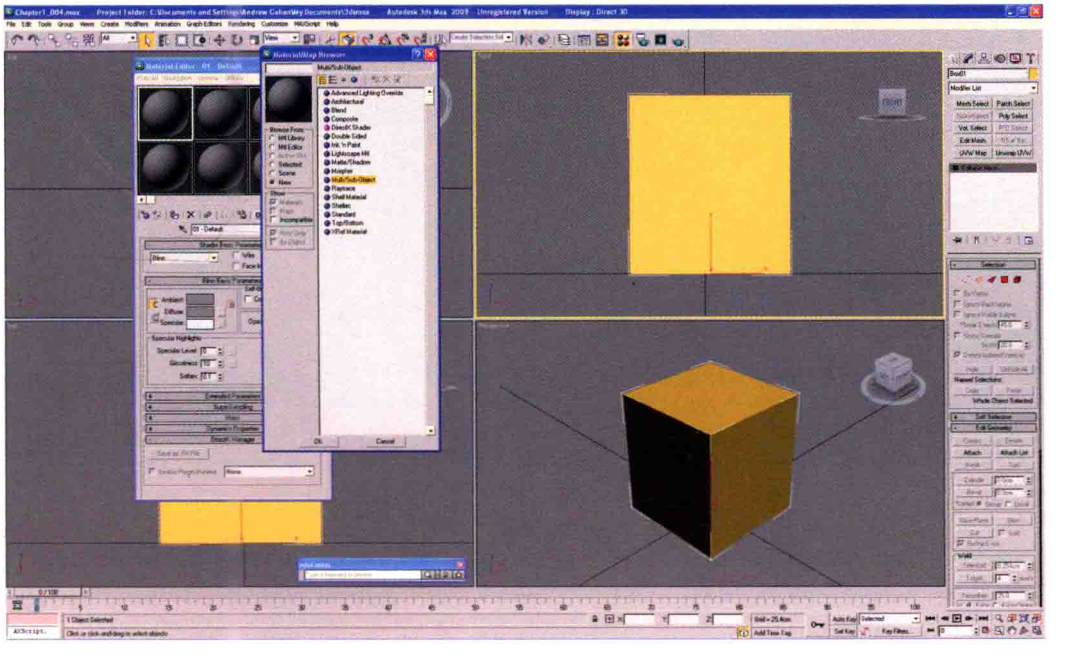

Figure 1.8