

BLENDER BASICS

A Beginner's Visual Guide to 3D Modelling



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Digital Skills

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Milton

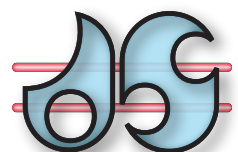
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Blender Basics: Introduction

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Other Titles Available:

Hands On AppGameKit Studio Volume 1

Hands On AppGameKit Studio Volume 2

Hands On C++17

Introduction

3D Modelling

Using a 3D modelling package allows us to create static objects or scenes which can be:

- printed using a 3D printer
- imported into a video game
- used to create a photo-realistic image
- form the landscape for a Virtual Reality scenario

The modelling package also allows us to create animations and these can be used to:


- create an animated video
- embedded into real world video to create special effects
- export to a video game where the game can control execution of the animation

Blender 4.1 is, at the time of writing, the latest incarnation of this powerful, professional-level 3D modelling package. And, despite the fact that other, similar packages are extremely expensive, Blender is free! You can download **Blender 3.1** from *www.blender.org*.

This Book

This book is aimed at the absolute beginner in 3D modelling. It will guide you, using a graphics-based, approach, through the fundamentals of 3D modelling and the specifics of using Blender 4.1. The pages are written in a way that allows you to follow along, creating your own models as you read through the pages, so that rather than your learning being a passive experience, it is a very active one which will not only make working through the book more fun, but will also help to develop and retain the skill set of a 3D modeller.

The Videos

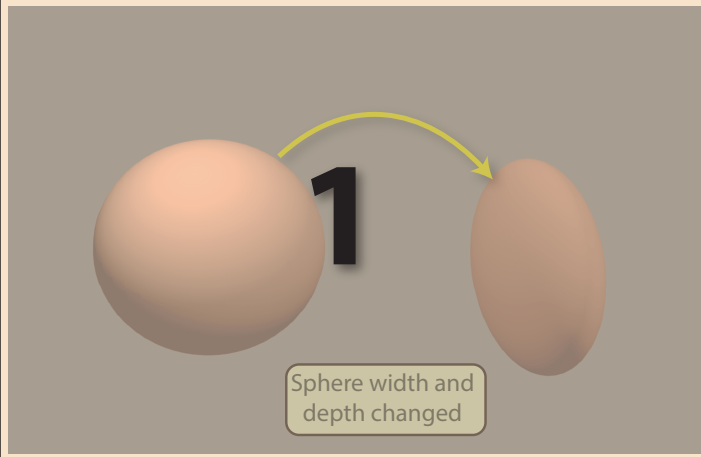
We have also developed a set of videos which are designed to be used in conjunction with the book. The videos are available on our YouTube channel. You'll also find a link to the relevant video in each section of the book - look for the  symbol. Click on the symbol to watch the video.

How to use the Package

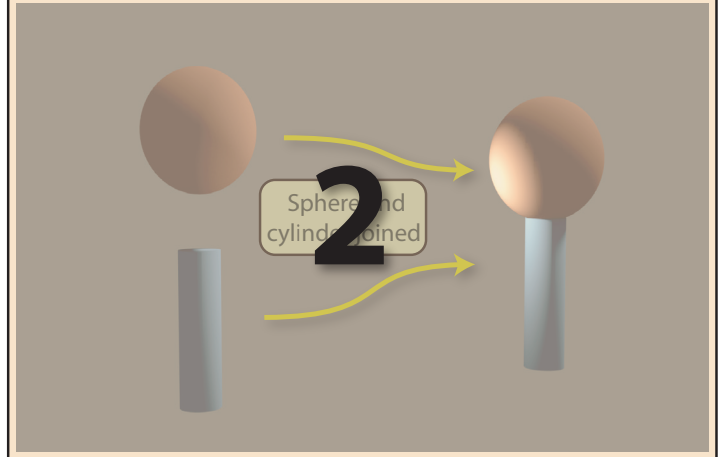
A suggested approach to making use of this video/book combination is to watch the video for a particular section (most are less than 10 minutes) and then use the corresponding book section as a reminder of the salient points covered by the video. Once you have enough basic knowledge of modelling, we will also suggest activities to try for yourself which will reinforce the learning process and build up your modelling skills.

Most pages in this book are designed as a set of six panels which should be read from left to right, top to bottom:

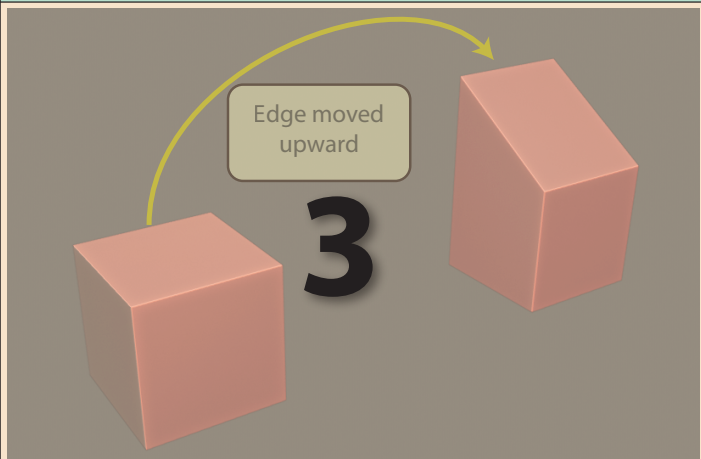
When creating models there are four basic approaches that may be used separately or in conjunction. The first of these is to modify the dimensions of a primitive.



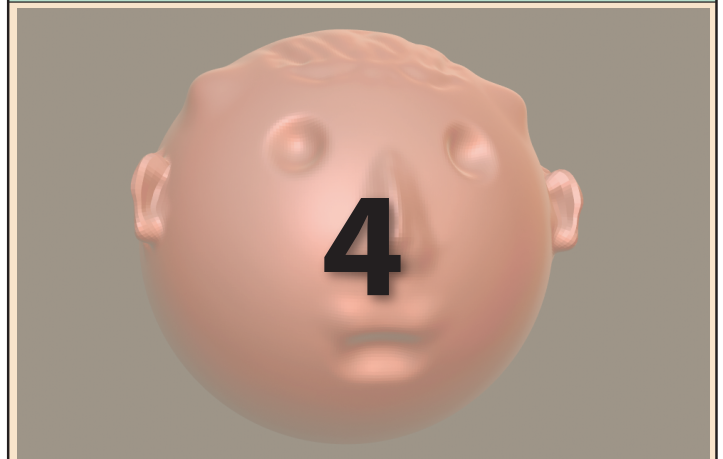
A second option is to join two or more primitives to create a new shape.



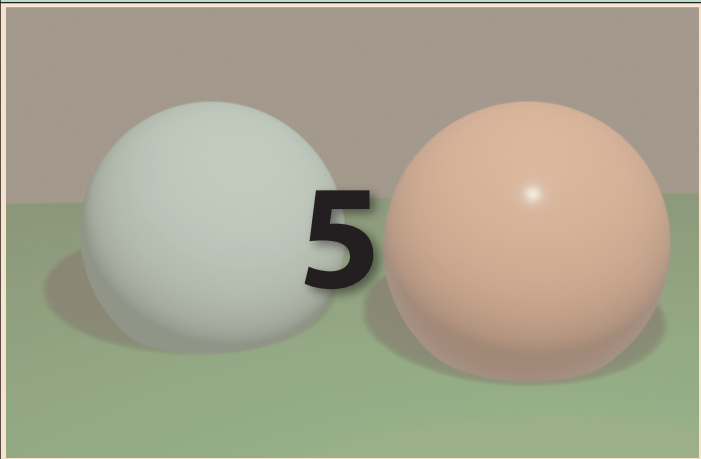
The third, and most used option when modelling man-made, rigid shapes (known as **hard body** objects) is to reposition the vertices, edges and/or faces that make up a primitive.



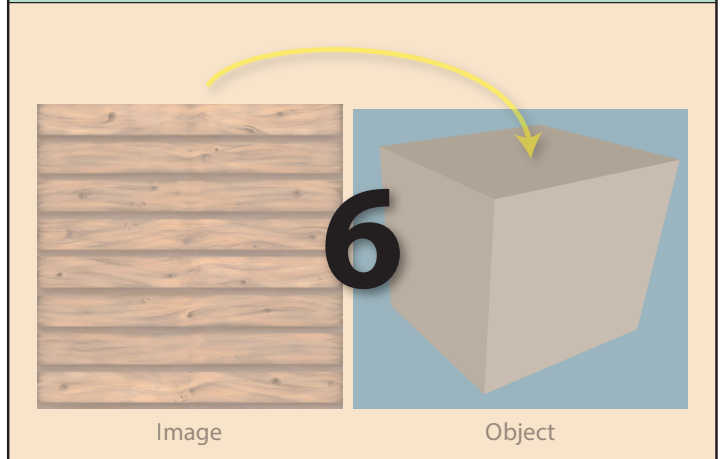
Finally, when creating organic shapes such as people or animals many modellers use sculpting. This technique is somewhat similar to molding clay and requires a fair degree of artistic talent!



Adding a **material** to an object allows us to define that object's final colour and reflectivity. For example, a material can give an object a dull or shiny appearance or have it appear transparent.
























Once an object has been assigned a material it can also be given a **texture**. A texture normally consists of one or more images which are assigned to the object.



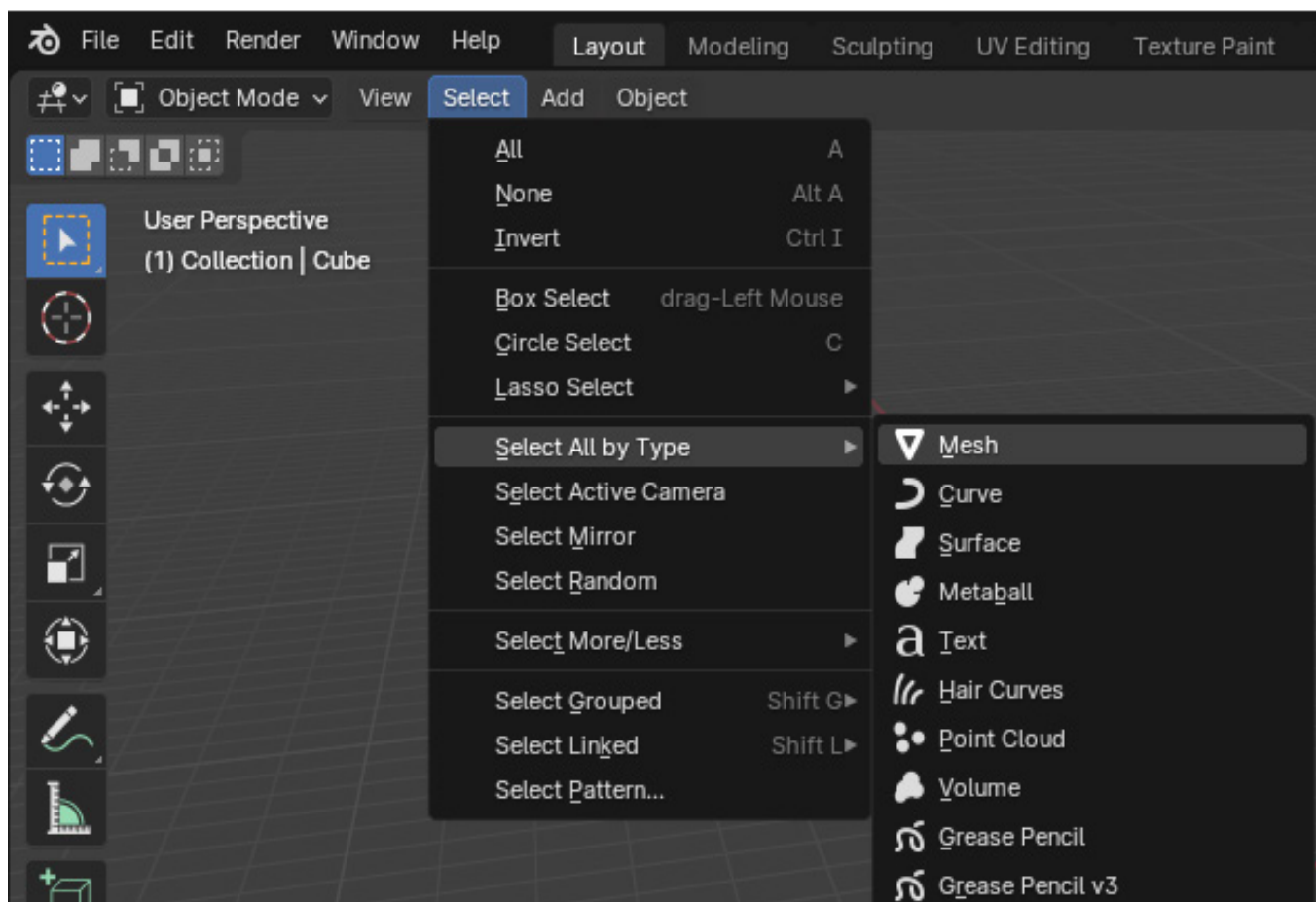
Book Conventions

Symbols are used to represent mouse and keyboard operations:

Symbol	Meaning
	Press left mouse button
	Release left mouse button
	Press right mouse button
	Release right mouse button
	Press middle mouse button
	Release middle mouse button
	Double click left mouse button
	Scroll mouse wheel up/down button
	Scroll mouse wheel up button
	Scroll mouse wheel down button
	Drag mouse, left button down
	Drag mouse, right button down
	Drag mouse, middle button down
	Move mouse, no buttons down
	Path of mouse drag operation
	Perform mouse operation at specified position (tip of arrow)
	Press specified key on keyboard
	Enter a value from keyboard
	Hold down specified key while pressing second key
	Hold down specified keys while pressing third key
	Press first key then second

Various Blender menus and attribute settings are represented in a shortened form after their first occurrence in the book as shown below:

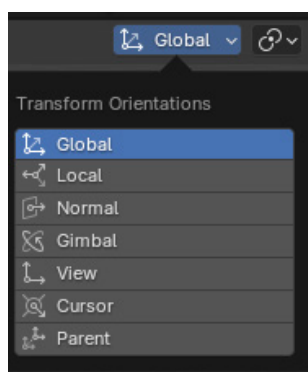
Menu entry (in Blender):



Menu Entry (in book):



Dropdown Field (in Blender):



Dropdown Field (in book):

