

Kelly L. Murdock

Autodesk®

# 3ds Max® 2025 Basics Guide



**SDC**  
PUBLICATIONS

Better Textbooks. Lower Prices.  
[www.SDCpublications.com](http://www.SDCpublications.com)



**ACCESS CODE**  
UNIQUE CODE INSIDE

**SDC Publications**

P.O. Box 1334

Mission, KS 66222

913-262-2664

www.SDCpublications.com

Publisher: Stephen Schroff

**Copyright 2024** Kelly L. Murdock

All rights reserved. This document may not be copied, photocopied, reproduced, transmitted, or translated in any form or for any purpose without the express written consent of the publisher, SDC Publications.

It is a violation of United States copyright laws to make copies in any form or media of the contents of this book for commercial or educational purposes without written permission.

**Examination Copies**

Books received as examination copies are for review purposes only and may not be made available for student use. Resale of examination copies is prohibited.

**Electronic Files**

Any electronic files associated with this book are licensed to the original user only. These files may not be transferred to any other party.

**Trademarks**

Autodesk and 3ds Max are registered trademarks of Autodesk, Inc. All other trademarks are property of their respective owners.

The author and publisher of this book have used their best efforts in preparing this book. These efforts include the development, research and testing of the material presented. The author and publisher shall not be liable in any event for incidental or consequential damages with, or arising out of, the furnishing, performance, or use of the material.

ISBN-13: 978-1-63057-678-3

ISBN-10: 1-63057-678-6

Printed and bound in the United States of America.

# Table of Contents

<b>Part I: Getting Started with Autodesk 3ds Max 2025</b> .....	<b>1</b>
<b>Chapter 1: Exploring the 3ds Max Interface</b> .....	<b>3</b>
Learning the Interface Elements .....	4
Using the Menus .....	6
Using the Toolbars .....	8
Using the Viewports .....	14
Using the Command Panel .....	14
Using the Lower Interface Bar Controls .....	17
Interacting with the Interface .....	18
Setting Preferences .....	21
Using Workspaces .....	22
Customizing the Interface .....	24
Getting Help .....	25
Summary .....	26
<b>Chapter 2: Controlling and Configuring the Viewports</b> .....	<b>29</b>
Understanding 3D Space .....	29
Using the Navigation Gizmos .....	31
Controlling Viewports with a Scroll Wheel Mouse .....	36
Using the Viewport Navigation Controls .....	36
Changing the Viewport Display .....	42
Enhancing the Viewport .....	45
Displaying Materials, Lighting, and Shadows in the Viewport .....	53
Working with Viewport Backgrounds .....	59
Setting Viewport Visual Style and Appearance .....	62
Setting Display Performance .....	66
Defining Regions .....	67
Summary .....	69
<b>Chapter 3: Working with Files, Importing, and Exporting</b> .....	<b>71</b>
Working with 3ds Max Scene Files .....	71

Importing and Exporting.....	79
Accessing File Information and Sharing Views.....	87
Summary .....	91
<b>Part II: Manipulating Objects.....</b>	<b>93</b>
<b>Chapter 4: Creating and Editing Primitives and Selecting Objects.....</b>	<b>95</b>
Selecting System Units.....	96
Creating Primitive Objects .....	98
Using Modeling Helpers.....	108
Selecting Objects .....	111
Setting Object Properties .....	123
Hiding and Freezing Objects .....	128
Using the Scene Explorer .....	132
Summary .....	138
<b>Chapter 5: Transforming Objects, Pivoting, Aligning, and Snapping .....</b>	<b>139</b>
Translating, Rotating, and Scaling Objects.....	139
Working with the Transformation Tools.....	142
Using Pivot Points .....	152
Using the Align Commands .....	156
Using Grids .....	160
Using Snap Options .....	162
Summary .....	167
<b>Chapter 6: Cloning Objects and Creating Object Arrays .....</b>	<b>169</b>
Cloning Objects .....	169
Understanding Cloning Options.....	172
Mirroring Objects .....	175
Cloning over Time.....	177
Spacing Cloned Objects.....	179
Using the Clone and Align Tool.....	182
Creating Arrays of Objects.....	184
Summary .....	191
<b>Chapter 7: Grouping, Linking, and Parenting Objects.....</b>	<b>193</b>
Working with Groups .....	193

134	Understanding Parent, Child, and Root Relationships .....	195
136	Building Links between Objects .....	196
138	Displaying Links and Hierarchies .....	198
139	Working with Linked Objects .....	199
140	Using the Schematic View Window .....	201
141	Summary .....	206
	<b>Chapter 8: Organizing Scenes with Layers, Containers, and XRefs .....</b>	<b>207</b>
147	Using Layers .....	207
148	Working with Containers .....	211
149	Referencing External Objects .....	216
149	Summary .....	224
	<b>Part III: Modeling 3D Assets .....</b>	<b>225</b>
	<b>Chapter 9: Accessing Subobjects and Modifiers and Using the Modifier Stack .....</b>	<b>227</b>
153	Exploring the Model Types .....	228
154	Understanding Normals .....	230
155	Working with Subobjects .....	232
156	Introducing Modifiers .....	237
157	Exploring the Modifier Stack .....	238
158	Summary .....	248
	<b>Chapter 10: Drawing and Editing 2D Splines and Shapes .....</b>	<b>249</b>
164	Drawing in 2D .....	249
165	Editing Splines .....	261
166	Summary .....	282
	<b>Chapter 11: Modeling with Polygons .....</b>	<b>283</b>
168	Understanding Poly Objects .....	283
169	Creating Editable Poly Objects .....	284
170	Editing Poly Objects .....	285
171	Summary .....	317
	<b>Chapter 12: Using the Graphite Modeling Tools and Painting with Objects .....</b>	<b>319</b>
174	Working with the Graphite Modeling Tools .....	319
174	Using the Freeform Tools .....	336
175	Using the Selection Tools .....	342

Using the Object Paint Tools.....	345
Summary .....	353
<b>Chapter 13: Working with Compound Objects .....</b>	<b>355</b>
Understanding Compound Object Types .....	355
Morphing Objects .....	356
Creating a Terrain Object .....	358
Working with BlobMesh Objects.....	360
Working with ProCutter .....	362
Summary .....	364
<b>Chapter 14: Using Mesh Modifiers and Deforming Surfaces.....</b>	<b>365</b>
Using Selection Modifiers .....	365
Using Primitive Maintenance Modifiers .....	367
Using Spline Modifiers.....	368
Using Edit Geometry Modifiers .....	377
Using Parametric Deformer Modifiers.....	385
Using Free Form Deformer Modifiers .....	402
Miscellaneous Modifiers .....	404
Subdivision Surface Modifiers .....	406
The Basics of Deformation Painting .....	407
Using the Deformation Brushes .....	410
Setting Painter Options .....	411
Summary .....	413
<b>Part IV: Applying Materials and Textures .....</b>	<b>415</b>
<b>Chapter 15: Creating and Applying Materials with the Slate Material Editor .....</b>	<b>417</b>
Understanding Material Properties.....	417
Working with the Slate Material Editor .....	419
Working with the Physical Material.....	428
Using the Material/Map Browser .....	435
Using the Material Explorer .....	437
Summary .....	440
<b>Chapter 16: Adding Material Details with Maps .....</b>	<b>441</b>
Understanding Maps.....	441

277	Selecting Maps .....	442
282	Editing Maps.....	449
282	Using the Viewport Canvas.....	454
282	Mapping Modifiers.....	460
273	Using the Unwrap UVW Modifier.....	464
272	Using the Edit UVWs Interface .....	466
282	Summary.....	484
<b>Chapter 17: Creating Compound Materials and Using Material Modifiers .....</b>		<b>487</b>
282	Using Compound Materials .....	487
282	Applying Multiple Materials.....	491
282	Using the Matte/Shadow Material .....	493
282	Using Other Materials .....	495
282	Using the Ink 'n Paint Material.....	497
282	Using Architectural and Autodesk Materials.....	499
282	Material Modifiers.....	502
282	Summary.....	506
<b>Part V: Setting the Scene: Cameras, Lights, and Rendering.....</b>		<b>507</b>
<b>Chapter 18: Configuring Cameras and Environments.....</b>		<b>509</b>
277	Learning to Work with Cameras .....	510
277	Setting Camera Parameters .....	517
277	Using the Camera Sequencer .....	523
277	Adding an Environment Background .....	524
277	Working with Environment Maps.....	527
277	Aligning a Camera with the Background Image .....	531
277	Summary.....	536
<b>Chapter 19: Using Lights and Basic Lighting Techniques .....</b>		<b>537</b>
277	Understanding the Basics of Lighting.....	537
277	Getting to Know the Light Types.....	541
277	Creating and Positioning Light Objects .....	544
277	Viewing a Scene from a Light.....	547
277	Altering Light Parameters .....	550
277	Using HDRI Lights .....	556

Positioning the Sun and Setting the Lighting Environment.....	558
Summary .....	563
<b>Chapter 20: Rendering a Scene and Working with Arnold .....</b>	<b>565</b>
Working with Render Parameters .....	565
Using the Rendered Frame Window .....	576
Working with Arnold.....	579
Summary .....	589
<b>Part VI: Animating Objects and Scenes.....</b>	<b>591</b>
<b>Chapter 21: Understanding Animation and Keyframes.....</b>	<b>593</b>
Using the Time Controls.....	593
Working with Keys.....	596
Using the Track Bar .....	600
Viewing and Editing Key Values.....	601
Using the Motion Panel .....	603
Using Ghosting .....	606
Animating Objects .....	607
Working with Previews .....	612
Using the RAM Player.....	613
Summary .....	616
<b>Chapter 22: Using Animation Layers and Animation Modifiers .....</b>	<b>617</b>
Using the Animation Layers Toolbar.....	618
Working with Animation Layers.....	619
Using the Animation Modifiers.....	622
Using More Animation Modifiers .....	627
Wiring Parameters .....	634
Summary .....	638
<b>Chapter 23: Animating with Constraints and Simple Controllers .....</b>	<b>639</b>
Restricting Movement with Constraints.....	639
Understanding Controller Types .....	650
Assigning Controllers .....	651
Examining Some Simple Controllers.....	654
Summary .....	658

<b>Chapter 24: Editing Animation Curves in the Track View .....</b>	<b>661</b>
Learning the Track View Interface .....	661
Working with Keys.....	670
Editing Time .....	676
Editing Curves .....	678
Filtering Tracks and Creating Track Sets.....	688
Working with Controllers.....	690
Using the ProSound Plug-in.....	691
Summary.....	694
<b>Part VII: Working with Characters and Special Effects .....</b>	<b>695</b>
<b>Chapter 25: Understanding Rigging, Kinematics, and Working with Bones and Skin .....</b>	<b>697</b>
Understanding Rigging.....	698
Building a Bones System .....	699
Using the Bone Tools.....	703
Forward Kinematics versus Inverse Kinematics .....	706
Creating an Inverse Kinematics System .....	707
Understanding Your Character.....	714
Animated Skin Modifiers.....	714
Summary.....	725
<b>Chapter 26: Animating Characters with CAT .....</b>	<b>727</b>
Character Creation Workflow .....	727
Creating a CAT Rig.....	728
Animating a CAT Rig .....	737
Summary.....	745
<b>Chapter 27: Using Particles and Space Warps .....</b>	<b>747</b>
Understanding the Various Particle Systems.....	748
Creating a Particle System .....	748
Using the Spray and Snow Particle Systems .....	749
Using the Super Spray Particle System.....	752
Using the Blizzard Particle System.....	764
Using the PArray Particle System.....	765
Using the PCloud Particle System .....	767

Using Particle System Maps.....	767
Controlling Particles with Particle Flow.....	769
Working with Actions.....	771
Using Particle Flow Helpers.....	773
Debugging Test Actions.....	776
Creating and Binding Space Warps.....	781
Understanding Space Warp Types.....	781
Combining Particle Systems with Space Warps.....	798
Summary.....	801
<b>Chapter 28: Using Atmospheric, Render, and Lighting Effects.....</b>	<b>803</b>
Creating Atmospheric Effects.....	803
Using the Fire Effect.....	805
Using the Fog and Volume Fog Effects.....	809
Using Volume Lights.....	813
Adding Render Effects.....	817
Creating Lens Effects.....	824
Summary.....	836
<b>Part VIII: Using Dynamic Animation Systems.....</b>	<b>837</b>
<b>Chapter 29: Simulating Physics-Based Motion with MassFX.....</b>	<b>839</b>
Understanding Dynamics.....	839
Using MassFX.....	840
Setting Object Properties.....	844
Using Constraints and Baking Keys.....	849
Working with mCloth and Ragdolls.....	853
Summary.....	855
<b>Chapter 30: Working with Hair, Cloth, and Fluids.....</b>	<b>857</b>
Understanding Hair.....	858
Working with Hair.....	858
Styling Hair.....	863
Rendering Hair.....	868
Using Hair Dynamics.....	869
Understanding Cloth.....	871

Creating Cloth..... 872

Simulating Cloth Dynamics ..... 877

Understanding Fluids..... 880

Getting Started with Fluids..... 881

Summary ..... 890

**Index.....891**