Getting Started With 3d Carving Using Easel X Carve And Carvey To Make Things With Acrylic Wood Metal And More

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Dream up and build your own sound and music projects—no experience necessary! This easy-to-follow guide shows, step-by-step, how to work with sound generation, recording, editing, and distribution tools. Co-written by a professional audio engineer and a dedicated maker-librarian, Makerspace Sound and Music Projects for All Ages gets you started designing, programming, and assembling fun music and audio creations right away. The book features dozens of DIY projects complete with parts lists, start-to-finish instructions, and full-color illustrations that guarantee success. You will explore the latest inexpensive—or free!—audio software for Windows, Apple, iOS, and Android devices. •Work with free and low-cost music apps and programs•Build unique musical instruments from household items•Choose a microphone that fits your needs and budget•Learn about DAWs and audio recording and editing applications•Start making sound with littleBits, Scratch, and MakeyMakey•Create killer drum beats and melodic sequences using micro:Bit•Record your music and use cutting-edge analog and digital effects•Add sound to your robotics, e-textile, 3-D printing, and wearable gadgets•Upload your audio creations to SoundCloud, YouTube, and iTunes If you've recently purchased a CNC machine for your shop, or

are just wanting to learn more about using one for woodworking and other crafts before you take the plunge, this is the book for you. You'll learn the basics behind the sometimes mystifying world of these fantastic machines, how to design your projects, which tools to use, how to painlessly convert your designs into language the CNC can understand, and pick up some tips on getting started in the shop and using your CNC safely. You'll find everything in simple non-technical language, that will move you from Newbie to Novice in easy-to-understand steps.

This book will show you how to use easy-to-learn techniques to create awesome 3D pumpkin personalities that will astonish your neighbors, family, and friends."

Making tedious wood carving techniques more approachable, Carving Small Characters in Wood offers simple methods in a smaller format to carve compact caricatures with personality. With step-by-step directions and photography, you'll be able to learn and appreciate this form of miniature character wood carving. Starting off with basic lessons on carving the body and face then progressing into greater challenges like creating ears, hairstyles, and grimaces, author and renowned caricature woodcarver Jack Price is the leading voice to learn from on how to carve small statuettes! A well-respected carver, Price is also the author of the popular books Carving Compact Characters and 50 Character Patterns for Woodcarvers. Beginning his career in 1975, he has been specializing in compact figures since 1978, with most of his work ranging from 2-3 inches in height.

American Woodworker magazine, A New Track Media publication, has been the premier publication for woodworkers all across America for 25 years. We are committed to providing woodworkers like you with the most accurate and up-to-date plans and information -- including new ideas, product and tool reviews, workshop tips and

much, much more.
Getting Started in ZBrush is a gentle introduction to ZBrush, today's premier digital sculpting program. Beginning with the fundamentals of digital sculpting as well as a thorough introduction to the user interface, Getting Started in ZBrush will have you creating a variety of professional-level 3D models in no-time. More than just another button-pushing manual, this comprehensive guide is packed with start-to-finish projects that ease you into the workflow of the program, while at the same time providing tips and tricks that will allow you to achieve certain tasks much more quickly. After progressing through the tutorials, you will be shown how to customize brushes, materials, scripts, and the interface so that you can utilize these tools to their full advantage. Special consideration is given to ZBrush's integration plug-ins with Maya and 3ds Max, allowing you to properly import and export your models in all programs. Texturing, painting, mapping, decimation, baking, and topology are also fully covered so your Zbrush creations can come to life without sacrificing that high-resolution look. Ease your way into this complex subject with this straight-forward approach to ZBrush Perfect your technique with step-by-step tutorials that allow you to create high res models from start to finish. Expand your knowledge by visiting the companion website, which features video demonstrations, project files, texture and model files, scripts, customized menus, brushes, and additional resources.
Provides patterns for carving into furniture and wooden utensils and discusses techniques and equipment
In this wonderful resource for both novice and veteran carvers, two masters of the craft present detailed instructions and illustrations on how to confidently carve animals, flowers, figures, and more.

Provides step-by-step instructions for building a variety of LEGO Mindstorms NXT and Arduino devices.

Follow along as Harold Enlow, one of America's foremost caricature carvers, teaches you how to carve faces with life and expression. Enlow shares his woodcarving tips and techniques that make his carvings stand out in this information-packed book. You'll learn to carve a female face, a cowboy face, a Native American face, a Santa face, and more. Best of all, you'll discover Enlow's secret to success: learning how to render highly detailed eyes, lips, nose, hair, and ears before moving on to carving a complete face. Each project is done in small steps that guarantee success. For anyone who wants to learn to carve faces that stand out in a crowd, this is a must-have addition to your woodcarving library.

A tool to empower and educate a new generation of inventors, creators, designers, and fabricators! This comprehensive resource is an accessible, beginner-friendly guide for anyone interested in understanding CNC (Computer Numerical Control) woodworking and the future of these technologies. From the fundamentals of CNC to its machinery, software, tools, materials, and 2-1/2 D carving, Beginner’s Guide to CNC Machining for Wood will teach you everything you need to know about your CNC router in a way that’s clear, approachable, and easy to comprehend. Also included are step-by-step CNC

projects that will allow you to practice various techniques in digital wood joinery and CNC machining. The general principles and instructions detailed are applicable to a wide range of software and CNC machine brands, making this must-have resource a comprehensive and inclusive guide that any woodworker can use! With clear instructions, diagrams, illustrations, software screenshots, and high-quality photography provided throughout, you'll be inspired and equipped with a strong foundation of knowledge to continue along the path of this innovative method of woodworking.

Learn how to use Autodesk Fusion 360 to digitally model your own original projects for a 3D printer or a CNC device. Fusion 360 software lets you design, analyze, and print your ideas. Free to students and small businesses alike, it offers solid, surface, organic, direct, and parametric modeling capabilities. Fusion 360 for Makers is written for beginners to 3D modeling software by an experienced teacher. It will get you up and running quickly with the goal of creating models for 3D printing and CNC fabrication. Inside Fusion 360 for Makers, you'll find: Eight easy-to-understand tutorials that provide a solid foundation in Fusion 360 fundamentals DIY projects that are explained with step-by-step instructions and color photos Projects that have been real-world tested, covering the most common problems and solutions Stand-alone projects, allowing you to skip

to ones of interest without having to work through all the preceding projects first Design from scratch or edit downloaded designs. Fusion 360 is an appropriate tool for beginners and experienced makers.

This easy-to-learn introduction to the art of pyrography offers fourteen step-by-step projects for making decorative gifts--from coasters and picture frames to bangles, decorative plates, and door hangers--illustrated with clear how-to photographs. Each pyro project can be completed using ready-made materials that are easy to find at your local craft store. Fifty bonus patterns will allow you to unleash your creativity on hundreds of additional woodburning projects.

Design, DIY, and computer-controlled fabrication are a powerful combination for making high-quality customized things. Written by the founders of the architecture, design, and research firm Filson and Rohrbacher, this book takes you through the basics of CNC fabrication, the design process, production, and construction of your own furniture designs. Through their AtFAB series of projects, accompanied by an overview of digital techniques and design thinking, this book introduces the knowledge and skills that you'll find widely applicable across all kinds of CNC projects. Not only will you learn how to design, fabricate, and assemble a wide range of projects, you'll have some great furniture to show for

it! While 3D printing has been grabbing headlines, high school, college, library, and other public makerspaces have been making things with CNC machines. With a CNC router, you can cut parts from strong, tactile, durable materials like wood. Once you have your design and material, you can set up your job and let it run. When it's done, you can put the project together for an heirloom of your own. While 3D printing can make exciting things with complex designs, CNCs are the digital workhorses that produce large-scale, long-lasting objects.

The CNC Router is the latest must-have piece of workshop equipment for the home enthusiast. At last we can organise a home computer to control a low cost CNC router to machine items for us. But how does it work? What can you make with it? If you are thinking of buying one, what do you look for? This booklet takes the beginner through the basic stages of understanding and using the CNC router - the design in CAD, defining the machining sequence in CAM and the operation of the CNC's control system. This is not a text book it just a guide written by a home enthusiast. It has been written to help hobbyists and model makers to understand the basics of using a CNC Router.

In his first work of narrative nonfiction, Matthew Pearl, bestselling author of acclaimed novel The Dante Club, explores the little-known true story of the kidnapping of legendary pioneer Daniel Boone’s

daughter and the dramatic aftermath that rippled across the nation. On a quiet midsummer day in 1776, weeks after the signing of the Declaration of Independence, thirteen-year-old Jemima Boone and her friends Betsy and Fanny Callaway disappear near the Kentucky settlement of Boonesboro, the echoes of their faraway screams lingering on the air. A Cherokee-Shawnee raiding party has taken the girls as the latest salvo in the blood feud between American Indians and the colonial settlers who have decimated native lands and resources. Hanging Maw, the raiders' leader, recognizes one of the captives as Jemima Boone, daughter of Kentucky's most influential pioneers, and realizes she could be a valuable pawn in the battle to drive the colonists out of the contested Kentucky territory for good. With Daniel Boone and his posse in pursuit, Hanging Maw devises a plan that could ultimately bring greater peace both to the tribes and the colonists. But after the girls find clever ways to create a trail of clues, the raiding party is ambushed by Boone and the rescuers in a battle with reverberations that nobody could predict. As Matthew Pearl reveals, the exciting story of Jemima Boone's kidnapping vividly illuminates the early days of America's westward expansion, and the violent and tragic clashes across cultural lines that ensue. In this enthralling narrative in the tradition of Candice Millard and David Grann, Matthew Pearl unearths a forgotten and dramatic

series of events from early in the Revolutionary War that opens a window into America's transition from colony to nation, with the heavy moral costs incurred amid shocking new alliances and betrayals.

Make: Getting Started with 3D Printing is a practical, informative, and inspiring book that guides readers step-by-step through understanding how this new technology will empower them to take full advantage of all it has to offer. The book includes fundamental topics such as a short history of 3D printing, the best hardware and software choices for consumers, hands-on tutorial exercises the reader can practice for free at home, and how to apply 3D printing in the readers' life and profession. For every maker or would-be maker who is interested, or is confused, or who wants to get started in 3D printing today, this book offers methodical information that can be read, digested, and put into practice immediately!

Getting Started with CNC is the definitive introduction to working with affordable desktop and benchtop CNCs, written by the creator of the popular open hardware CNC, the Shapeoko. Accessible 3D printing introduced the masses to computer-controlled additive fabrication. But the flip side of that is subtractive fabrication: instead of adding material to create a shape like a 3D printer does, a CNC starts with a solid piece of material and takes away from it. Although inexpensive 3D printers can make great things with plastic, a CNC can carve highly durable pieces out of a block of aluminum, wood, and other materials. This book covers the fundamentals of designing for--and working with--affordable ($500-$3000)

CNCs.

Celebrated paper artist and designer Marc Hagan-Guirey has applied his genius to the Star Wars galaxy in this book of 15 unique kirigami (cut-and-fold) ships featured in the saga's films. Ranging in difficulty from beginner to expert, each beautifully detailed model features step-by-step instructions and a template printed on cardstock—all that's needed are a utility knife, a cutting mat, and a ruler. Clear tips and guidance through the tricky stages help readers craft their own X-wing, Imperial Star Destroyer, Millennium Falcon, and a dozen more ships and vehicles, each accompanied by colorful and inspiring photographs of the final model on display (or ready for a jump to Hyperspace).

Getting Started with 3D CarvingUsing Easel, X-Carve, and Carvey to Make Things with Acrylic, Wood, Metal, and MoreMaker Media

Features 2007 Santa Carving Contest Prize-winning entries and highlights from annual contest Pursuing a Passion By Bob Duncan Innovative 3D patterns enable blind artisan to carve in relief Woodcarving Hollywood-Style By Bob Duncan Local artists teach Sissy Spacek to carve for her latest role First Cuts CCA members Harold Enlow, Randy Landen, Gerald Sears, and Joe You share stories and tips on getting started in carving PROJECTS Simple Starter Santa By Kathleen Schuck Beginner Santa makes an ideal weekend project Easy Evergreen Puzzle By Sandy Smith Carved, interlocking pieces create a folk-style ornament Folk Art Santa By Rick Jensen An antique finish gives Santa the look of a treasured heirloom Easy Weekend Nuthatch Pin By

George Calef Basic power carving techniques create a fun and functional pin Olde World Santa Ornament By Mark Gargac Pierced cuts add interest to this traditional Santa carving Holiday Memories Santa By Shawn Cipa Carved Santa proudly displays your Holiday photos Carving a Dogwood Leaf By Kenny Vermillion Power carved leaf adds realism and authenticity to your habitat Decorative Floral Sled By Charley Phillips Colorful poinsettias highlight a relief-carved centerpiece Simple Carved Moldings By Chris Pye Repeating designs are perfect accents for frames and furniture Delicate Pierced Ornaments By Barry McKenzie Chip carve through the wood to produce stunning decorations DEPARTMENTS Editor's Letter From Our Mailbag News & Notes Tips & Techniques Reader Gallery Judge's Critique Calendar of Events Coming Features Advertising Directory & Classifieds Teacher's Corner

An introduction to working with and designing for desktop and benchtop CNCs and subtractive printing.

Learn the fast and simple way to whittle in this fun introduction to woodcarving. Discover how to whittle in less time while you have more fun! One of the joys of whittling with a pocketknife is that you can do it just about anywhere. You don't need any fancy equipment, and you don't even need much spare time. Author Tom Hindes demonstrates his easy-to-learn, quick-cut method for whittling expressive little figures from wood in just 20 minutes or less. With his friendly instructions and step-by-step photos, you'll learn to carve an endless array of charming wizards, gnomes, gargoyles, ornaments, dogs, leprechauns, and more. These super-short whittling

projects are perfect for learning basic woodcarving skills. They also make wonderful little gifts for random acts of kindness. Leave one along with your tip at the local restaurant, or give one to your favorite cashier. Children especially enjoy receiving them as souvenirs.

Take leather crafting into the 21st century with this complete guide that marries traditional skills to the latest CNC and 3D printing technologies. Learn how to start making your own leather creations with traditional tools, and then take them to incredible new levels with digital design techniques. Leatherworking is one of humankind's oldest skills and remains a fun and exciting way to make great-looking wearables, accessories, and cosplay items. 3D printers and even hobbyist-class CNC machines have created fantastic new opportunities for new directions in this popular hobby. The book is perfect for makers new to leatherworking, as well as experienced leatherworkers who want to understand how to integrate new digital fabrication tools into their workbench. Written by an experienced leatherworker and programmer, this is a resource that makers will turn to again and again. Highlights: First comprehensive reference on applying digital design techniques to leatherwork Provides both a reference manual and a project guide Includes traditional techniques like cutting, stamping, tooling and dyeing leather Introduces novices and experienced leatherworkers to cutting-edge digital tools Every project has been real-world tested Opens up exciting new project areas for makers This book provides valuable reference and how-to information for makers interested in leatherworking but who have no prior

experience, for experienced leatherworkers who want to extend their knowledge to include new digital tools, and for 3D printing and CNC enthusiasts who want to include a new material in their repertoire. Leatherworking is a hobby that is enjoyed by a wide range of people from middle school through adulthood and can be incorporated into a variety of other kinds of projects, from clothing design and costuming to carrying cases and furniture.

3D printing has been the hot topic in the maker world for years now, but there's another type of desktop manufacturing that's become the go-to choice for anyone who needs durable results fast. Instead of slowly depositing layers of plastic, a 3D carver starts with a solid block of material and carves it away using a rotating metal bit. It's faster than 3D printing, offers a wider choice of materials, and creates durable, permanent parts that look great. This book covers the basics of designing and making things with a 3D carver, and gives you several projects you can build yourself including a guitar, clock, earrings, and even a skateboard.

Carve the perfect Halloween masterpiece! Whether you're a first-time pumpkin carver or an experienced pro, create the best jack-o-lantern on the block with this handy guide. Impress those trick-or-treaters with clever, easy-to-carve pumpkin ideas. Easy Pumpkin Carving offers tips and tricks for fang-tastic pumpkin carving with techniques that go way beyond traditional methods. Create luminary pumpkins and etched pumpkins, combine multiple pumpkins in creative ways, or embellish pumpkins without even touching a knife. With

inspirational color photos and a dozen ready-to-use pumpkin carving patterns, you're sure to have a spooktacular Halloween with this book.
Follow along with clear, step-by-step instructions, illustrations and photographs, to learn how to make a realistic human skull out of a pear-shaped pumpkin. Then go beyond the skull, see a collection of Mike's 3d pumpkin carvings for inspiration, and get some tips on how to turn any ordinary pumpkin into a disturbingly realistic 3d masterpiece!
The book is written in a casual, conversational style. It is easily accessible to those who have no prior knowledge in 3D printing, yet the book's message is solidly practical, technically accurate, and consumer-relevant. The chapters include contemporary, real-life learning exercises and insights for how to buy, use and maintain 3D printers. It also covers free 3D modeling software, as well as 3D printing services for those who don't want to immediately invest in the purchase of a 3D printer. Particular focus is placed on free and paid resources, the various choices available in 3D printing, and tutorials and troubleshooting guides.
You can whittle just about anything—the only limit is your imagination. It’s so easy to get started in this relaxing and rewarding hobby. All you need is a knife, a twig, and this book! We’ve assembled a team of 12 leading woodcarvers to bring you a complete starter guide to whittling. They present 24 easy whittling projects for beginners that you can make in just a weekend, complete with step-by-step instructions, how-to photographs, ready-to-carve patterns, and helpful tips.

Start off with fast and fun projects that build confidence and teach fundamental carving techniques, like a simple flying propeller or a 5-minute owl. Then move on to create whittled wonders like a musical frog or a slingshot. We show you how to whittle complex designs in easy steps, so that you'll soon be carving attention-getting favorites like chain links or the classic ball-in-a-cage.
Dive hands-on into the tools, techniques, and information for making your own analog synthesizer. If you're a musician or a hobbyist with experience in building electronic projects from kits or schematics, this do-it-yourself guide will walk you through the parts and schematics you need, and how to tailor them for your needs. Author Ray Wilson shares his decades of experience in synth-DIY, including the popular Music From Outer Space (MFOS) website and analog synth community. At the end of the book, you'll apply everything you've learned by building an analog synthesizer, using the MFOS Noise Toaster kit. You'll also learn what it takes to create synth-DIY electronic music studio. Get started in the fun and engaging hobby of synth-DIY without delay. With this book, you'll learn: The differences between analog and digital synthesizers Analog synthesizer building blocks, including VCOs, VCFs, VCAs, and LFOs How to tool up for synth-DIY, including electronic instruments and suggestions for home-made equipment Foundational circuits for amplification, biasing, and signal mixing How to work with the MFOS Noise Toaster kit Setting up a synth-DIY electronic music studio on a budget
Fun and easy to learn, soap carving is an enjoyable craft

for both adults and kids. This comprehensive guide teaches everything from basic carving methods to sophisticated techniques for accomplished artists. Twenty-two projects include simple carvings for beginners as well as complex soap sculptures.

Have you scouted for that book that contains all the juicy bits of information on the scroll saws but found none? Or maybe you found some but weren't thrilled enough to start something? Do you want a step by step scroll saw guide to begin your first project and help give life to your creative imagination? Then here is the book for you, dear scroll artist or scroll artist-to-be… This book, The Big Book of Scroll Saw for Beginners, has virtually everything needed to jumpstart your frst scrollsaw project, including the tips, guidelines, and instructions you will need to make you feel like you are in a classroom where the art is taught. Or perhaps, this is your first time hearing of the scroll saw, and you're thinking, 'Oh no, I'm not going to be fooled by these things! Scroll artists are just carpenters searching for nicer titles!' Relax and get to know what this art entails first! Trust me; you'll love it. What is Scroll saw? Scroll saws are usually fixed to a place and driven by a motor that powers the blades to their beautiful designs. You wouldn't believe it, but scroll saws have been used right since the ages of our forefathers. The only issue was that the art was called a different name—Fretwork. However, the devices got better and more efficient over the years, causing many people to take this art as a hobby and even as a job. The device is cheap, and as long as you can exercise a lot of patience while reading

through the guidelines in this book, you will be good to go. Now, have you seen some woodwork projects and gotten awed by them? Do you see yourself doing something very similar to those things? Yes? Then this book is just what you need. Just like the name suggests, this book is very suitable for beginners, but you won't remain a beginner at the end of the book. You'll come out neatly polished and ready to make professional cuttings. Likewise, experts in scroll saw art are free to peruse this book to have their knowledge even more refined, thereby complementing what they already know about this art. At the end of this book, you will; 1. Be well informed on the historical information and the timelines from when the scroll saw existed. 2. Gain access to the tips, and tools to guide you in crafting your first scroll saw project. 3. Be aware of all the safety precautions to follow to keep yourself safe and free from potential hazards while using the scroll saw device. 4. Uncover the right materials needed to craft awesome scroll saw projects. 5. Be exposed to 20 scroll saw projects with detailed guidelines to help bring out your artistic and creative side to life. 6. Discover some of the mistakes involved with using the scroll saw with tips to avoid such mistakes. 7. Be privy to some of the most frequently asked scroll saw questions; it's like communicating with other artists within a book …And a whole lot more! What more are you waiting for? Grab a copy of this book RIGHT NOW

This text provides readers with an exploratory lens into the general world of the Fab Lab with an in-depth focus on two specific types of machinery: laser cutters and engravers. These machines give users the unique opportunity to create

through the removal of material from its source. Included for readers are hands-on tips and tricks for operating laser cutters and engravers, providing a variety of projects for every experience level, all the while connecting these skills to real-world business models and careers. This title tackles the arts and design element of STEAM more than any other Fab Lab machines do.

It has never been easier to take an idea that you have and turn it into a product or a business. Stepcraft's All-In-One Creation CNC Systems have been the centerpiece of many businesses and have helped bring countless products to life. The universal nature of the machine gives you the ability to do many different tasks, from cutting and carving to 3D printing and engraving. This book was written to show you the possibilities that are within reach and to show you what you can create with a Stepcraft; whether it is a product or a business. I discuss everything from choosing a name to marketing and sales. I have included several examples of businesses that existing customers have started to help give your mind a jump-start. If you have been thinking about starting a business but never had the ability to turn your ideas into reality, then this book is for you. Learn how a Desktop CNC System from Stepcraft can open up a world of possibilities for you, your family and your business.

Create the best jack-o'-lantern on the block by taking a fresh approach to the old Halloween tradition! This book shows you how to use relief-carving techniques to create realistic features like cheeks, lips and eyebrows that really make your pumpkins come alive. Learn to carve 20 fun three-dimensional faces and scenes in solid pumpkins (no hollowing necessary) using tools ranging from kitchen knives to carving gouges and chisels. Complete information is provided for getting started, including an overview of tools and tips for finding the best pumpkin to work with.

Do you like to build things? Are you ever frustrated at having to compromise your designs to fit whatever parts happen to be available? Would you like to fabricate your own parts? Build Your Own CNC Machine is the book to get you started. CNC expert Patrick Hood-Daniel and best-selling author James Kelly team up to show you how to construct your very own CNC machine. Then they go on to show you how to use it, how to document your designs in computer-aided design (CAD) programs, and how to output your designs as specifications and tool paths that feed into the CNC machine, controlling it as it builds whatever parts your imagination can dream up. Don't be intimidated by abbreviations like CNC and terms like computer-aided design. Patrick and James have chosen a CNC-machine design that is simple to fabricate. You need only basic woodworking skills and a budget of perhaps $500 to $1,000 to spend on the wood, a router, and various other parts that you'll need. With some patience and some follow-through, you'll soon be up and running with a really fun machine that'll unleash your creativity and turn your imagination into physical reality. The authors go on to show you how to test your machine, including configuring the software. Provides links for learning how to design and mill whatever you can dream up The perfect parent/child project that is also suitable for scouting groups, clubs, school shop classes, and other organizations that benefit from projects that foster skills development and teamwork No unusual tools needed beyond a circular saw and what you likely already have in your home toolbox Teaches you to design and mill your very own wooden and aluminum parts, toys, gadgets—whatever you can dream up

Programming with OpenSCAD is a STEM-focused, learn-to-code book for beginners that introduces core computational thinking concepts through the design of 3D-printable objects. Develop coding skills as you build increasingly complex 3D

models and print them into fun games, puzzles, and more. OpenSCAD is freely available open source software that enables nondesigners to easily create 3D designs using a text-based programming language. It's a great language for beginners because the instant 3D visualization gives you immediate feedback on the results of your code. This book channels OpenSCAD's visual benefits and user-friendliness into a STEAM-focused, project-based tutorial that teaches the basics of coding, 3D printing, and computational thinking while you develop your spatial reasoning by creating 3D designs with OpenSCAD. Presuming no prior experience with either programming or 3D design, each chapter builds a scaffolded understanding of core concepts. You'll start by defining, drawing and displaying geometric primitives with text-based code, then expand your creative toolbox with transformation operations – like rotating, reflecting, scaling, and combining shapes. As the projects become more sophisticated, so will your programming skills; you'll use loops for replicating objects, if statements for differentiating your designs, and parameterized, self-contained modules to divide longer scripts into separate files. Along the way, you'll learn 3D printing tips so that you can produce physical mementos of your progress and get physical feedback that lets you correct mistakes in real time. In addition, the book provides hands-on and accessible design exercises at the end of each chapter so that you can practice applying new concepts immediately after they are introduced. You'll learn: • Programming basics like working with variables, loops, conditional statements, and parameterized modules • Transformation operations, such as rotate, reflect, and scale, to create complex shapes • Extrusion techniques for turning 2D shapes into elaborate 3D designs • Computational-thinking concepts, including decomposition, abstraction, and pattern recognition • OpenSCAD's Boolean, Minkowski and

hull operations for combining multiple 3D shapes into one • 3D design fundamentals, like navigating the xyz-axis, orthogonal vs. perspective views, and constructive solid geometry • Organizing bigger designs into separate files to make code more readable and collaborative Accessibly written for a wide audience (advanced middle schoolers, high school students, college students, artists, makers and lifelong-learners alike), this is the perfect guide to becoming proficient at programming in general and 3D modeling in particular.
Model and print your own 3D creations using SketchUp! Get up and running fast in the consumer design and fabrication world using the hands-on information in this guide. 3D Printing and CNC Fabrication with SketchUp features step-by-step tutorials of fun and easy DIY projects. Learn how to create your own 3D models, edit downloaded models, make them printable, and bring them to physical life either on your own printer or through an online service bureau. Download and install SketchUp on your Mac or PC Navigate the interface and SketchUp's native design tools Download design and analysis tools from the Extension Warehouse. Edit models downloaded from the 3D Warehouse and Thingiverse. Import and export STL files. Analyze your projects for 3D printability. Set up, use, and maintain a home 3D printer Work with AutoCAD, 123D Make, 123D Meshmixer, and Vetric Cut2D Generate files for CNC cutters