

Meeting SketchUp

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Once upon a time, software for building three-dimensional (3D) models of things like buildings, cars, and other stuff was hard to use — *really* hard. People went to school for years to learn that software. And if that wasn't bad enough, 3D modeling software was expensive — so expensive that the only people who used it were professionals and software pirates (people who stole it, basically). After debuting in 2000, SketchUp changed all that.

In SketchUp, you don't think about 3D models as complex mathematical constructs (the way computers think). You build models with familiar elements: lines and shapes. To use SketchUp, you don't even need to know how to draw. In SketchUp, you just *build*, and SketchUp takes care of stuff like perspective and shading for you.

This first chapter is about putting SketchUp in context: where to get it, how it compares with other 3D software, and what you can (and can't) do with it. In the last part of the chapter, you go on a quick tour of the program, so that you know where things are.

Things You Ought to Know Right Away

Before we continue, here's some information you may need:

- » **You get SketchUp by downloading it from www.sketchup.com.**
- » **SketchUp works in Windows and Mac OS X.** For the most part, SketchUp looks (and works) the same way on both.
- » **SketchUp has a free and a full version: SketchUp Make and SketchUp Pro.** SketchUp Make does most of the things that the full version does but is designed for noncommercial use. With SketchUp Pro, you get terrific features that folks like architects, construction pros, and other design professionals need for exchanging files with other software. SketchUp Pro also includes a whole separate application — dubbed *LayOut* — for creating presentations and construction drawings from your SketchUp models. You learn the basics of LayOut in [Chapter 14](#).



TIP If you know you need SketchUp Pro, go ahead and download it. You can try it for free before you have to buy a license. After the trial period ends, Pro stops working until you license it.

Comparing SketchUp to Other 3D Modeling Programs

If you're reading this book, we presume you're at least interested in two things: building 3D models and using SketchUp to do so. The following sections tell you something about how SketchUp compares with other 3D modeling programs — how long it takes to figure out how to use it and what kind of models it produces.

Jumping right in

Among the widely available 3D modeling applications, SketchUp is the easiest to use. This software has been successful for one reason: Within a few hours of launching SketchUp for the first time, you can get good enough at SketchUp to build something. You have no thick manuals to read, and no special geometric concepts to understand. Modeling in SketchUp is about grabbing your mouse and making something.

So how long should it take you to discover how SketchUp works? That depends on your background and experience. In general, you can expect to make something recognizable in fewer than four hours. That's not to say you'll be a whiz — it just means that SketchUp's learning curve is extremely favorable. You don't need to know much to get started, but you'll still pick up things years from now. In fact, we've both discovered a couple things just writing this book.

But is SketchUp *easy*? Lots of people say so, but we think it's all relative. SketchUp is, without a doubt, *easier* than any other modeling program we've tried, but 3D modeling itself can be tricky. Some people catch on right away, and some folks take longer. But we can say this for sure: If you want to build 3D models and you have an afternoon to spare, there's no better place to start than SketchUp (and this book, of course). [Chapter 2](#) walks you through the basics to help you start modeling in SketchUp quickly.

Understanding the difference between paper and clay

Three-dimensional modeling software comes in two basic flavors: *solids* and *surfaces*. The following points illustrate the difference:

» **SketchUp is a surfaces modeler.** Everything in SketchUp is basically made of thin (infinitely thin, actually) surfaces — dubbed *faces*. As shown in [Figure 1-1](#), even things that look thick (like cinderblock walls) are actually hollow shells. Making models in SketchUp is a lot like building things out of paper — really, really thin paper.

Surfaces modelers like SketchUp are great for making models quickly because all you really need to model is what things *look* like. That's not to say that surfaces modelers are less capable; they're just intended for visualization.

» **Using a solids modeler is more like working with clay.** When you cut a solid model in half, you create new surfaces where you cut. That's because objects are, well, solid. Programs like SolidWorks, form•Z, and Autodesk Inventor create solid models.

People who make parts — like mechanical engineers and industrial designers — tend to work with solid models because they can use them to do some pretty precise calculations. Being able to calculate the volume of an object means that you can figure how much it will weigh, for example. Also, special machines can produce real-life prototypes directly from a solid-model file.

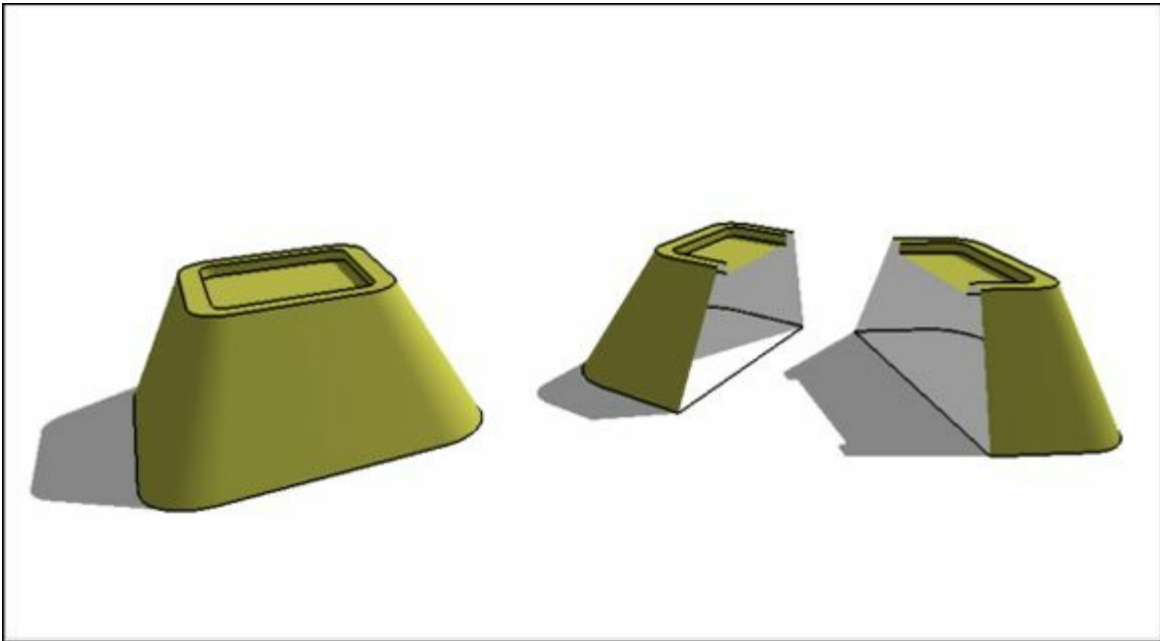


FIGURE 1-1: SketchUp models are hollow.



TIP Although SketchUp is a surfaces modeler, its Solid tools enable you to manipulate special solid objects in your models. Read all about the Solid Tools in [Chapter 6](#).



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Yet another caveat: When we said (a few paragraphs ago) that 3D modeling programs come in two basic flavors, we sort of lied. The truth is, you can group these programs another way: by the kind of math they use to produce 3D models. You can find *polygonal* modelers (of which SketchUp is an example) and *curves-based* (NURBS) modelers. The former type uses straight lines and flat surfaces to define everything — even things that *look* curvy, aren't. The latter kind of modeler uses true curves to define lines and surfaces. Curves yield organic, flowing forms that are much more realistic than those produced by polygonal modelers, but put a lot more strain on the computers that have to run them. Curves modelers are also harder to learn how to use. Ultimately, it's a trade-off between simplicity and realism.