# HOW DO I...
# USE GOOGLE SKETCHUP?
## (THE BASICS)

Can a 3D digital model help you visualize your DIY project? Google SketchUp is a free 3D modeling program that enables you to design the kitchen of your dreams, the backyard you've always wanted, or an invention that's been floating around in the back of your mind. Many design professionals (architects, landscape architects, engineers, graphic artists, industrial and product designers, and inventors to name a few) use this program because it is so affordable and intuitive. This guide explains basic steps to create a 3D model. Download this program at www.sketchup.com.

## WHAT YOU NEED

**ENTHUSIASM**

**VISION**

**COMPUTER**

**INTERNET**
To download program

**PATIENCE**

**IDEAS**

**PEN/PAPER**
To jot down ideas

**PERSISTANCE**

## BENEFITS

Learn

Creativity

Design Experience

Have Fun!

## GETTING STARTED

**1** **UNDERSTANDING THE BASICS.** Before getting started on your 3D model, it is important to become familiar with the tools commonly used in SketchUp. Start by

building simple shapes to practice before beginning your model. Refer to the *Tips & FAQS* section of this guide to learn about these tools.

**2** **DEVELOP YOUR IDEAS.** Before working on your model, it is helpful to write or draw out your ideas on paper.

a. Define the project you would like to undertake. People often choose to work on architectural and landscape improvement projects. However, SketchUp can also work well for product or industrial design.

b. Brainstorm different ideas and designs for your model by envisioning form and function. Do you want a rounded or more rigid form? Will your design intent be fixed or multi-use? Who will be the potential users of your design? It is important to think about different design considerations to develop strong ideas.

c. Synthesize your ideas. Some of your ideas may change and develop as you're working through your design, but that is okay. You may realize new ideas that arise are more suitable and beneficial for your project. What's important is to stick to your design intent while having fun!

**3** **GET A SENSE OF SIZE.** If you are designing a space or object, it is important to understand the size of the whole project. You can work in feet, inches, meters or millimeters. If designing a room, measure and input the correct dimensions of the area into your model before building in the space. These measurements are necessary to design everything to a realistic scale. If you are desiging a product or structure, make sure to use proportions appropriate for your design. With your measurements in place, you are ready to start building your 3D model!

**4** **FIND AND CONSTRUCT COMPONENTS.** You can import components, which are objects with two or more edges or faces, into your model by searching for them in an open source library called 3D Warehouse. If you want to construct your own components, you need to know what kind of shapes are used to create their

form. For example, if building a typical rectangular dresser (Fig.1), it is important to note that the object is made up of numerous rectangular surfaces. Refer to the *Tips & FAQS* and *Resources* sections of this guide to learn how to construct components.



Fig. 1

**5** **PLACE COMPONENTS INTO MODEL.** Now that you have the components you need, you can place them in the desired locations within your model! For example, if designing a kitchen, make sure to include kitchen counters, cabinets, a refrigerator, a sink and other essential features to define the space.

**6** **ADD COLOR AND TEXTURE.** Next, make your objects and components come to life by adding color and texture! Use the paint bucket tool to add that glass panel to your window, or to give your door a wooden finish. Adding color and texture gives your model more clarity!

**7** **COMMUNICATE YOUR DESIGN IDEAS.** Now that your model is complete, you can show others your vision! It always helps to capture different views of your model through the "Scenes" command, which will then allow you to export 2D images of those views into different file types. These image files can then be printed or imported into other software programs such as PowerPoint and many Adobe programs!

# TIPS & FAQS

## WHAT ARE COMMONLY USED TOOLS?

**SELECT.** This tool allows you to select one or more elements to modify and use in conjunction with other tool commands.

**ERASER.** This tool allows you to delete undesired elements in your model. If you hold shift in conjunction with this tool, you will be able to hide an element instead of erase it.

**PENCIL.** This tool allows you to draw lines to create planes and objects. When drawing lines, you can type in the desired measurement on the lower right hand corner of the screen. Note that the apostrophe symbol (') represents feet and the quotation symbol (") represents inches.

**ARC.** This tool allows you to create a regular arc, a 2-point arc, a 3-point arc, and a pie. When drawing these, you can also type in the desired measurements in the box on the lower right hand corner of the screen.

**SHAPES.** This tool allows you to draw a rectangle, rotated rectangle, circle and polygon. When drawing these, you can set measurements by typing in the box on the lower right hand corner of the screen.

**PUSH PULL.** This tool allows you to add depth, width and height to selected planes on the red, blue and green axes (X, Y and Z axes, respectively). You can type in the desired heights and depths of a plane in the box on the lower right hand corner of the screen.

**OFFSET.** This tool allows you to create copies of lines and faces according to a desired spacing of your choosing. You are able to offset the edges of an enclosed face inside and outside of the original face.

**MOVE.** This tool allows you to relocate lines and objects to any desired location in your model.

**ROTATE.** This tool allows you to rotate objects at any angle along the red, blue and green axes.

**TAPE MEASURE.** This tool allows you to measure lines and objects within your model.

**SCALE.** This tool allows you to upsize and downsize an object in your model. There are many endpoints and midpoints you can select to scale the object to whatever dimensions you desire.

**TEXT.** This tool allows you to add numerical and/or lettered text to your model. Use it to label measurements of selected objects.

**PAINT BUCKET.** This tool allows you to add color and texture to selected faces on objects. This tool is great for showing the materials used and needed in your model.

**ORBIT.** This tool allows you to rotate the camera around the model to view it from different angles.

**PAN.** This tool allows you to move around your model space vertically and horizontally.

**ZOOM.** This tool allows you to move the camera closer and farther away within your model.

**ZOOM EXTENTS.** This tool allows you to zoom your camera to a distance that makes your whole model visible and centered.

**GET MODELS.** This tool allows you to import objects from the 3D Warehouse into your SketchUp model.

**EXTENSION WAREHOUSE.** This tool allows you to add special plug-ins and features to SketchUp. These add-ons range from drawing and rendering to animation and 3D printing.

## HOW DO I IMPORT OBJECTS FROM THE 3D WAREHOUSE?

The Google 3D Warehouse allows you to import objects into your model. You can select from a variety of objects by typing in your desired result in the search engine.

To access the 3D Warehouse, click the "Get Models" icon in the toolbar at the top of the screen. You can also access this digital warehouse by searching "Google 3D Warehouse" in the Google search engine.

A dialogue box will appear on the screen allowing you to type in the desired object. After typing in the keyword, a variety of search

results will appear. In the following example, typing "fridge" in the 3D Warehouse search bar will give you many pages of options.
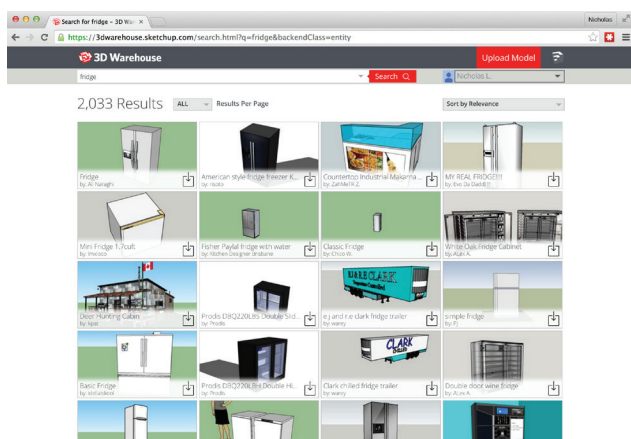


Select your desired option by clicking the "Download Model" icon ⬇ on the bottom right hand corner of the option box. A dialogue box will appear verifying that you want to download the object into your model. After you click "yes" in the dialogue box, the component will appear in your model.



Teknion Studio-Envita
by: Teknion

This process can be repeated to import a variety of pre-made objects and components into your model. Enjoy!

# RESOURCES

## INSTRUCTIONAL LINKS

Watch this **"SketchUp (Basic Tutorial)"** video to understand the basic tools and commands.
youtube.com/watch?v=XzPJGXljbNI

Learn to create polygons in **"How to Create Pentagons, Octagons, or Any Polygon in Sketchup."**
youtube.com/watch?v=zSGT1Zj_N5E&feature=youtu.be&list=UU3UiIrGU42Hp2joP8_-o2-w

The 3D Warehouse is a great resource to use if you want to import objects into your model. See **"Google SketchUp Tutorial 11 - Adding objects from the 3D Warehouse."**
youtube.com/watch?v=HYTf3M_2u1s

If you want to design landscapes, modeling terrain can be useful. Check out **"SketchUp: Drawing Terrain and Landscapes."**
youtube.com/watch?v=3DSmo_dLAmM

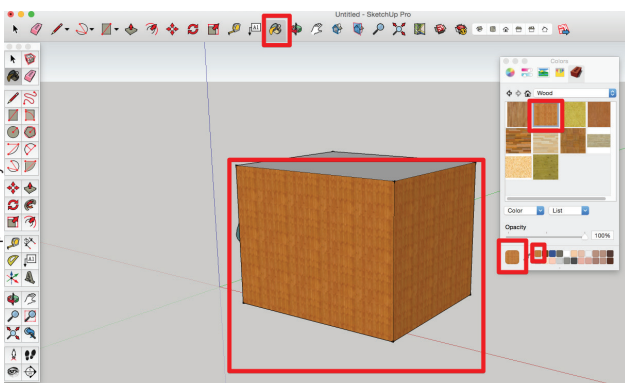Source: https://www.sketchup-ur-space.com
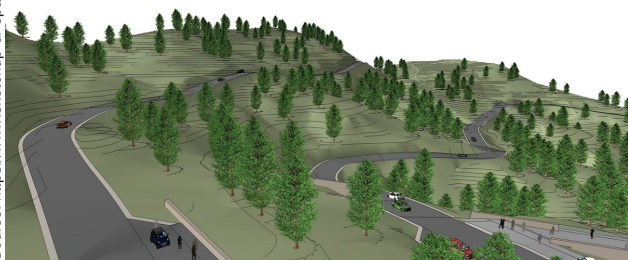


**Terrain defines a landscape's character.**

SketchUp has many materials you can choose from to define your objects. **"SketchUp Materials (Textures, Paint Bucket)"**
youtube.com/watch?v=zDvj--hoTZk

Source: https://www.youtube.com



**Enliven your model with color and texture!**

Plug-ins and extensions can help make your model more sophisticated. Check out **"How to Install Plugins, and Extensions in Sketchup."** youtube.com/watch?v=1UxaAocenEM&feature=youtu.be

Have an existing floor plan you want to transform into a 3D space? This video will help: **"How to Model Objects with Floor Plans in Google SketchUp."** https://www.youtube.com/watch?v=GH8OHdMRFHk

Learn why components are so useful in SketchUp and how to create them by watching **"How to Create Components in Google SketchUp."** https://www.youtube.com/watch?v=fSw4pAMXf0U

Layers are so important for organizing your work. **"How to Work with Layers in Google SketchUp"** https://www.youtube.com/watch?v=vwOkB8DSkNA

## REFERENCES

**"Google SketchUp for Site Design: A Guide To Modeling Site Plans, Terrain and Architecture"** by Daniel Tal.

**SketchUp Knowledge Base** (October 2015)
General help.sketchup.com/en
Creating scenes help.sketchup.com/en/article/3000146
Importing and exporting image files
help.sketchup.com/en/article/3000169

**Learning to Model Terrain in SketchUp** (Landscape Architecture Magazine, October 2012) sketchup-ur-space.com/2012/sept/learning-to-model-terrain-in-SketchUp.html

**Preparation: The Basics of Designing Your House with SketchUp**
brighthub.com/internet/google/articles/12038.aspx

Go to asla.org and search for **"Google SketchUp Presentation Graphics: Creating Effective Images and Animations"** to find an informative presentation by Daniel Tal, a landscape architect and Google SketchUp specialist in Denver, CO.