



SketchUp for Woodworkers

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Presentation Outline

- Introduction to SketchUp
- Benefits for Woodworkers
- Important Features and Understandings
- References
- Some Actual Usage and Practice

What is SketchUp

- Computer software for creating 2 & 3D drawings
- Relatively easy to learn and operate
- Generates detailed and accurate drawings
- Interacts with CAD programs (e.g. Autocad)
- Operates on Windows and Mac Systems (and Linux too)
- Works Effectively with Photos (jpeg files)

3D Modeling

- Accurate Measurements – lengths, angles, scale, measure tool and protractor
- Draws Edges and Faces with simple tools – line, rectangle, circle, arc, polygon, free hand
- Inferencing – direction (XYZ), point, surface, intersection, parallel, perpendicular, tangent, center, midpoint
- Copies and Arrays – Move Tool
- Follow-Me – Extrude 2D Object
- Push/Pull – 2D object to 3D
- Offset
- Rotate
- Scale

Organization and File Exchange

- Model Organization:
 - Groups
 - Components
 - Layers
 - Outliner
 - Reload

- File Exchange:
 - Export 2D Vector (PDF) & Raster (JPEG, TIFF) images
 - Import/Export CAD files (DWG, DXF)
 - Export 3D models,
 - Import 2D Raster Images – photo, textures, photo match

Concepts

- Viewing– 2d/3d drawing space on a monitor – perspective and isometric views
- Drawing Tools
- Construction Tools
- Modification Tools
- Presentation Aids
- Scenes and Layers
- Styles

Presentation Tools

- Dimensions and Labels
- Scenes
- Styles
- Section Planes
- Look Around
- Walk through

Content and Plug-Ins

- Match Photo Tool
- 3D Warehouse – place for getting and giving models
- Plug-Ins – handy tools developed by others and available through built-in Plug-in Manager
- Sandbox for Terrain Integration
- Google Earth Integration

Use SketchUp to:

- Visualize final product or project
- Verify construction methods
- Check dimensions
- Evaluate alternative designs
- Aid future projects with available existing models.
- Access to models by others (3D Warehouse)
- Interact within Woodworking community – see later reference

Some Benefits for Woodworkers

- Develop initial concepts and dimension
- Develop designs from pictures or existing drawings
- Simulate actual projects by assembling piece by piece
- Examine projects from all visual angles
- Give prospective clients project visualization
- Generate working drawings
- Download designs by other for use or modification
- Provide project parts and cut lists

Important Things to Understand

- Know Axes color reference, Red = X, Green = Y, Blue = Z
- Use Built-in Inferences to aid in accurate drawing:
- Use measuring box to define exact size
- How Drawing and Modification Tools Work
- Save Work Frequently
- Always Draw on Layer 0
- Once an Object is 3D make Component
- Move Component to Layer where it Resides
- Complete Model before Creating Scenes, Textures, Dimensions

Components and Groups

- Key to effective and efficient design
- Keeps objects separated so that modifications don't affect other objects in the model
- Make duplication simple
- Components can be stored and used in other projects

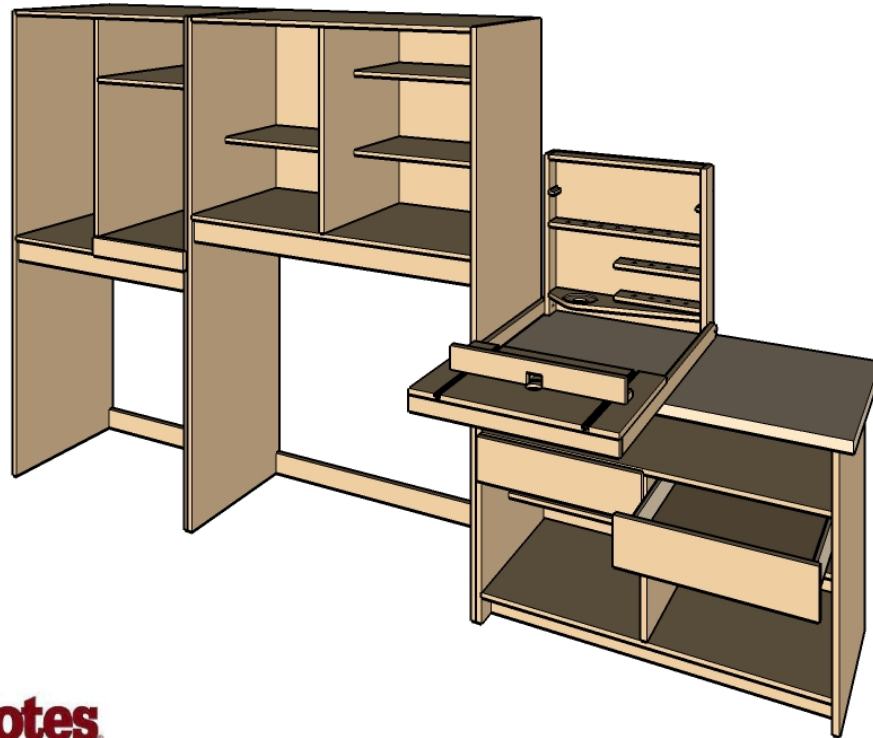
Other Important Skills

- Copying including generating multiple copy equally space or distributed between two ends
- Flipping along axes
- Intersecting faces, groups and components
- Scaling objects

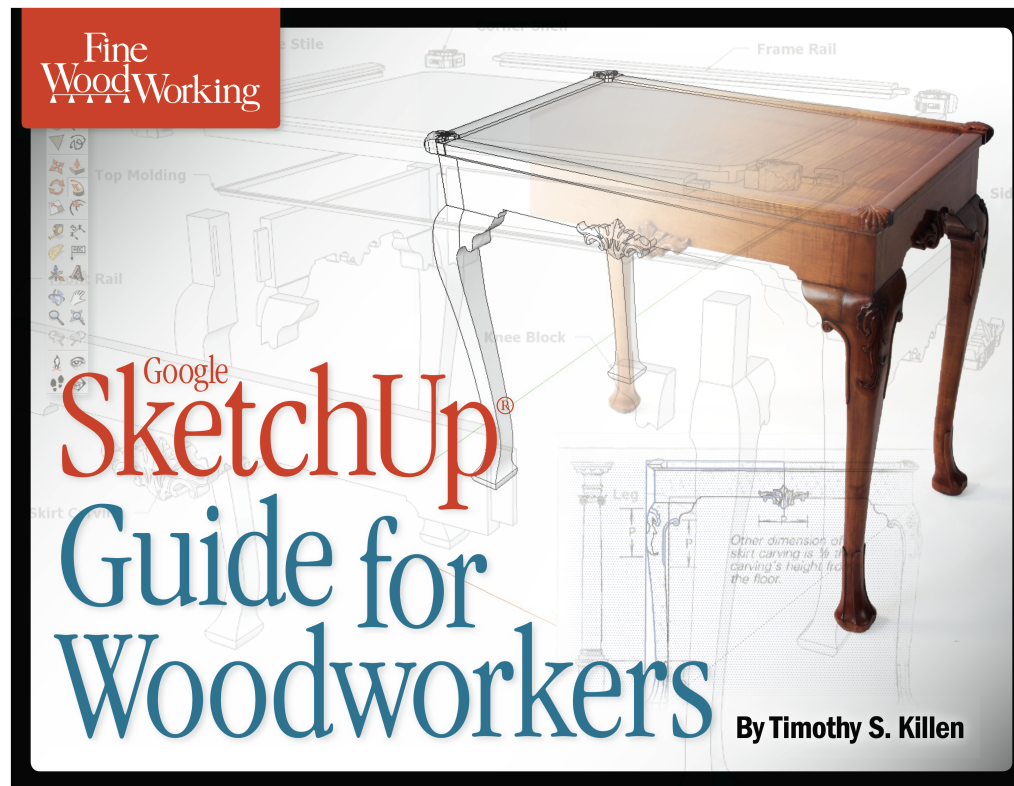
Some References

- SketchUp for Dummies – Excellent getting started book
- Woodworking Sketch-Up Books:
 - Popular Woodworking – Robert Lang on-line tutorials and 5 Books (hardcopy and electronic)
 - Fine Woodworking – Tim Killen and Dave Richards on-line blog (Design, Click, Build) plus on-line tutorials, several paper and eBooks
- Internet Sites – see list
 - Wood Magazine
 - Woodsmith and Shop Notes
 - Lumberjocks
 - Woodwhisperer
 - American Woodworker

An Example



A SketchUp Book Example



Obtaining SketchUp

- Download at <http://sketchup.com>
- Current versions:
 - ✓ SketchUp 2013 Make = Free
 - ✓ SketchUp 2013 Pro = \$590
- Free version does 80 to 90% of paid version
- But Pro version includes a very valuable Layout and Style Builder programs
- See comparison later in presentation
 - Many, many others

SketchUp vs. SketchUp Pro

Comparison

Google SketchUp
Home/Personal
Use

Google SketchUp
Pro
Professional Use

Price

Free

\$495.00

Support

Email technical support



Online Help Center, Video Tutorials and Groups



3D Modeling

Create custom intelligent object/components



Google SketchUp - Make 3D models using all of SketchUp's simple but powerful tools



Reports

Generate reports (xml, csv) of all named entities in a SketchUp model, with their associated attributes.



SketchUp vs. SketchUp Pro (cont)

Exporting and Importing

Export 3D models: 3DS, DWG, DXF, FBX, OBJ, VRML, XSI



Export 3D models: KMZ, COLLADA



Export 2D vectors: PDF, EPS, EPIX



Export 2D rasters: JPEG, TIFF, PNG



Import 2D and 3D DWG and DXF files



Import 3D models and 2D graphics in many formats: COLLADA, KMZ, 3DS, DEM, DDF and a range of image formats



Documentation & Presentation

Create large-format, multi-page documents



(LayOut)

SketchUp vs. SketchUp Pro (cont)

Dimension and annotate scaled SketchUp models and vector graphics



Link, update and embed SketchUp models in your 2D documents and presentations to keep changes synchronized



Share multi-page documents with clients in PDF, print, raster image, or Presentation mode.



Present SketchUp models in live, full-screen presentations



Create scene-based animations for dynamic fly-through presentations



SketchUp vs. SketchUp Pro (cont)

Printing

High-quality printing including vector, raster and hybrid rendering modes



Print on any sheet size, including large-format



Print multi-page documents



Print single-page views of your SketchUp models



Styles

Create custom edge treatments for Styles



Create and share your own Styles



Google 3D Warehouse Integration

Find, share and store pre-built model components in the 3D Warehouse



Google Earth Integration

Include real world context for your models, including aerial photos and terrain, from Google Earth



Let's Try SketchUp

- Basic Drawing Techniques for Woodworkers
- Past Club Project - Sheraton Table Drawing
- Some Recent Examples of Mine
 - Outfeed Table/Workbench
 - Corner Entertainment Table
 - Workshop Layout