


A Brief Intro to Google SketchUp

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Lexington Computer Group Meeting

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Summary of presentation

- My goal is not to try to teach you the details, but to show you what's available and how to get started
- What is SketchUp?
- Comparison to other drawing tools
- Manuals, help, user groups, tutorials and training
- Suggestions for starting SketchUp the first time
- Some examples to be demo'ed:
 1. Box, box with hole (round and rectangular)
 2. Simple cape house
 3. Woodworking – a little beyond simple examples
- On-line downloads/videos/tutorials and links to them
 Two Most Important Slides
- If we have time: A few slides with extra info

What is SketchUp?

- Google software
 - Used to make 3D sketches/drawings (working in 2D)
 - Can insert earlier models that you did or from Google's 3D warehouse -- in this case modeling is more like assembling than drawing
 - Interfaces well with Google Earth
 - Models can be made even more realistic using Rendering programs
- Where did it come from, how much does it cost, and how can you get it
 - For a brief history of S-Up see Wikipedia article
 - Google bought it from @Last Software
 - \$(zero) for basic, ~ \$500 for Pro version
 - Many free plug-ins, some for a nominal cost
 - Download it – see the links later in presentation or just do a search for “SketchUp Download”

Comparison to other drawing tools

SketchUp is somewhat in between

- Simpler drawing tools
 - Like those in Windows Office products and Open Office
 - Free (with the baseline software)
- More sophisticated CAD engineering tools like:
 - AutoCAD, ProEngineer, SolidWorks
 - Not free (~1K\$ to Many K\$ for multiuser licenses)
- There are a large number of graphic rendering programs
 - See Wikipedia on topic of 3D rendering
 - Some of them work with S-Up to give photo realistic renderings of S-up models

Manuals, help, user groups, tutorials, books and training

There is a substantial amount
of help in the form of

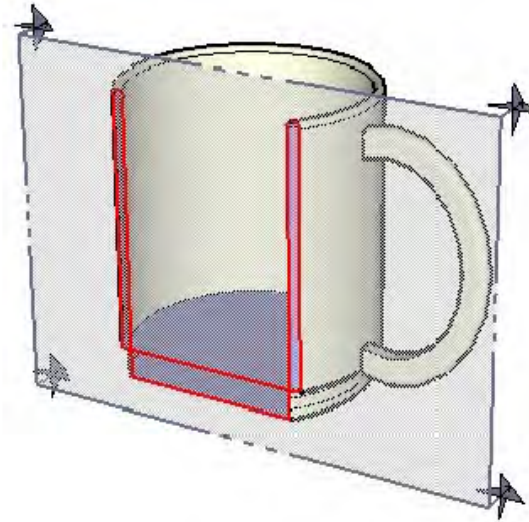
- *the instructor*,
- S-up help,
- manuals,
- tutorials on YouTube,
- help for special
applications such as
woodworking,
- books (Dummies series)
- DVD courses and
- conferences

See the links later in this
presentation.

There is an 800+ page PDF manual that can
be downloaded (with a lot of white space).
See link latter.

Section Plane Entities

Section Planes are special entities that control the SketchUp section cutting effect. Their position in space and in relation to groups and components determine the nature of the section cut effect. The following image shows a rectangular section plane creating a section cut effect in a model of a cup.



Suggestions for Starting SketchUp the First Time

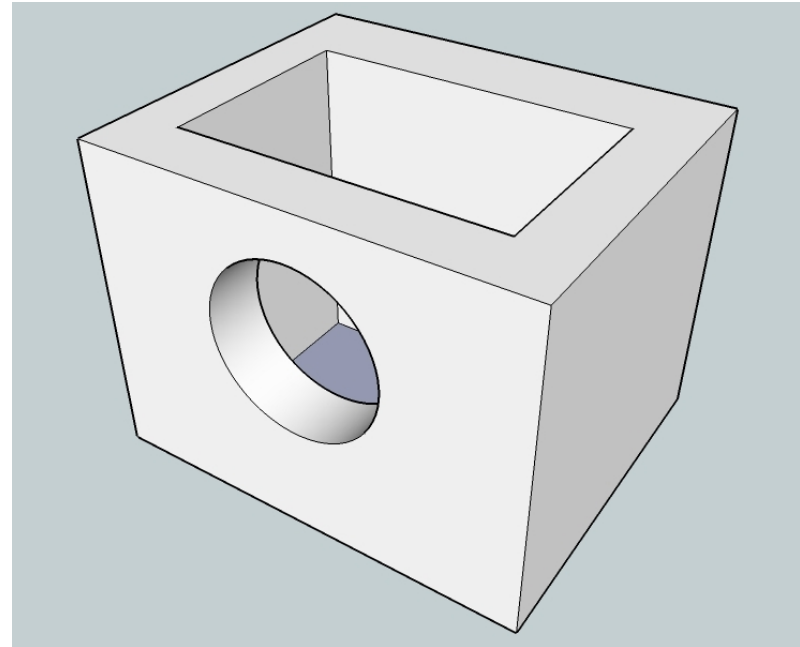
- In the *Welcome to SketchUp 7* window click *Template* and If you wish pick the one you want. If you don't it will default to the highlighted one, which is the last one you used.
- Then click on *Start using SketchUp*.
- Under the *View* tab and *Toolbars* I suggest you pick at least
 - Large tool set
 - Standard
 - Face style
 - Views
 - Measurement
 - Large buttons

Some picks are redundant with the Large tool set
- If the *Instructor* window is not open go to the *Windows* tab and click on it.
- Use *Save* and *Save As* like you do in Office programs; there is an autosave and the time interval can be adjusted under *Windows, Preferences and General*

1. Block, block with holes

Demonstrate:

- Templates and more Icons
- The importance of *UNDO*
- Bottom line hint and Using the *Instructor*
- How to make a rectangle and *push/pull* it into a block
- Viewing options
 - Translating,
 - Rotating,
 - Zooming
- Add extensions, holes, and use *follow me* tool
- Brief discussion of “sticky” objects and using groups and components



You can make JPEGs of you designs and export them to other applications.

2. Simple cape house

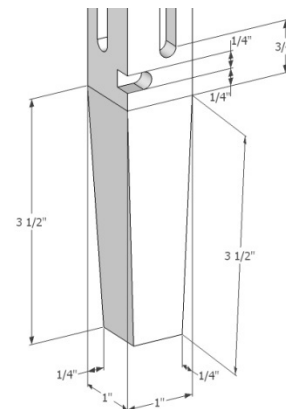
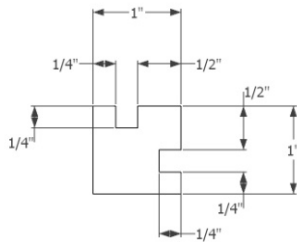
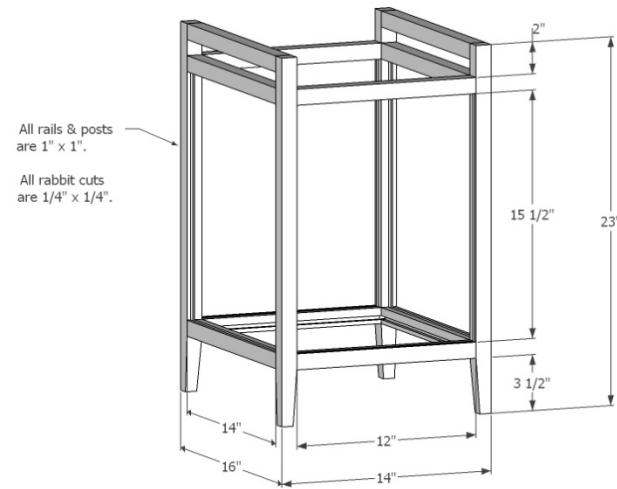
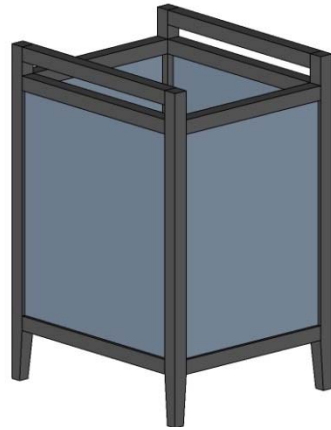
Demonstrate:

- Moving and copying
- Imports from 3D warehouse
 - Things like windows, doors, furniture, cabinets, etc. so you don't need to keep reinventing the wheel
- Coloring & textures, Shadows & Fog



3. Woodworking Example & Using Components

Wastebasket design showing layers, scenes, and dimensioning.



Some Demos/Tutorials (1 of 2)

- Can just search Google for SketchUp and:
 - Download
 - Videos
 - Help
 - Tutorials
 - YouTube
- Google SketchUp's own pages:
 - Download S-Up and some starting tutorials
 - http://sketchup.google.com/training/videos/new_to_gsu.html
 - Download 800 page manual PC or MAC
 - <http://sketchup.google.com/support/bin/answer.py?hl=en&answer=1000000>
 - Hardware requirements
 - <http://www.google.com/support/sketchup/bin/answer.py?hl=en&answer=1000000>
- Google Sketchup User Group Tips & Tricks – Somewhat Advanced
 - <http://groups.google.com/group/SketchUp/web/tips-tricks>

Some Demos/Tutorials (2 of 2)

- Good collection of ~25 videos, good orderly group of tutorials
 - <http://download.sketchup.com/downloads/training/tutorials50/Sketchup50TrainingVideos.zip>
For version 5 of SketchUp, but the basics are the same
- YouTube for SketchUp, there are 100's of videos
 - http://www.youtube.com/results?search_type=&search_query=sketchup
- Mega-links to other sites
 - <https://community.nus.edu.sg/ddm/index.php?q=node/50>
 - <http://download.sketchup.com/downloads/sidebars/T3L.pdf>
- For fun: A rapid fire house design with music, and a simulated neighborhood with a car crash (there's a lot in this model)
 - <http://www.youtube.com/watch?v=rJcMe1OFBRQ>
 - http://www.youtube.com/watch?v=i_S79TwJQ-s

Extra slides if we have time:

- Styles – how style selection can change the appearance of the same model
- S-Up Icon reference card
- Dartmouth model in Google Earth
- Rendering examples

Large Toolbar

Select Tool (Spacebar)
 Ctrl = Add to selection set
 Shift = Toggle in/out of selection set
 Shift+Ctrl = Subtract from selection set
 Ctrl+A = Select all

Paint Bucket Tool (B)
 Ctrl = Adjacent fill
 Shift = Replace
 Shift+Ctrl = Adjacent replace
 Alt = Sample material

Eraser Tool (E)
 Shift = Hide
 Ctrl = Soften/Smooth
 Shift+Ctrl = Unsoften/Unsmooth

Make Component (G)

Rectangle Tool (R)
 MTB: Length, Width

Line Tool (L)
 Shift = Lock to current axis
 Arrow keys = Toggle axis lock
 MTB: Number = Length

Circle Tool (C)
 Shift = Lock to current orientation
 MTB: Number+s = Segments
 MTB: Number = Radius

Arc Tool (A)
 MTB: Number = Bulge
 MTB: Number+s = Segments
 MTB: Number+r = Radius

Polygon Tool
 Shift = Lock to current orientation
 MTB: Number+s = Segments
 MTB: Number = Radius

Freehand Tool
 Shift = Draw 3D Polyline

Move Tool (M)
 Shift = Lock to current axis
 Arrow keys = Toggle axis lock
 Ctrl = Toggle copy
 Alt = Toggle auto-fold
 MTB: Number = Distance

Push/Pull Tool (P)
 Ctrl = Toggle new starting face
 Double-Click = Repeat
 MTB: Number = Distance

Rotate Tool (Q)
 Ctrl = Toggle copy
 MTB: Number = Angle
 MTB: Rise:Run = Slope

Follow Me Tool
 Alt = Use perimeter of surface as path

Scale Tool (S)
 Shift = Scale uniformly
 Ctrl = Scale about center
 MTB: Number = Scale factor
 MTB: Number w/ units = Length

Offset Tool (F)
 Double-Click: Repeat
 MTB: Number = Length

Tape Measure Tool (T)
 Ctrl = Toggle create construction geom
 Arrow keys = Toggle axis lock
 MTB: Number = Resize model

Dimension Tool

Protractor Tool
 Ctrl = Toggle create construction lines

Text Tool

Axes Tool

3D Text Tool

Orbit Tool (O)
 Shift = Pan
 Ctrl = Free

Pan Tool (H)

Zoom Tool (Z)
 Shift = Change field of view

Zoom Extents Tool (Shift+Z)

Previous

Next

Position Camera Tool

Look Around Tool
 MTB: Number = Eye height

Walk Tool

Section Tool

Dynamic Components Toolbar

- Interact Tool
- Component Options
- Component Attributes

Google Toolbar

- Get Current View
- Toggle Terrain
- Place Model
- Get Models
- Share Model

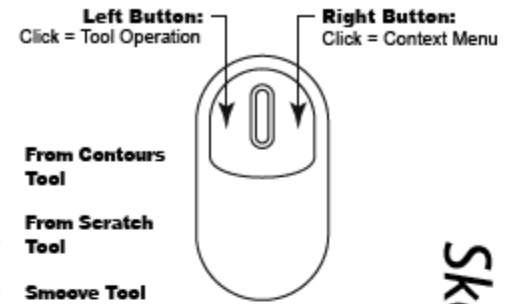
Face Style Toolbar

- X-Ray
- Wireframe
- Hidden Line
- Shaded
- Shaded With Textures
- Monochrome

Shadows Toolbar

- Display Shadows
- Shadow Settings

Middle Button (Wheel):
 Click-Drag = Orbit
 Shift-Click-Drag = Pan
 Double-Click = Re-Center View
 Scroll = Zoom



Sandbox Toolbar

- From Contours Tool
- From Scratch Tool
- Smooove Tool
- Stamp Tool
- Drape Tool
- Add Detail Tool
- Flip Edge Tool

Views Toolbar

- Iso
- Top
- Front
- Right
- Back
- Left

Sections Toolbar

- Display Section Cuts
- Display Section Planes

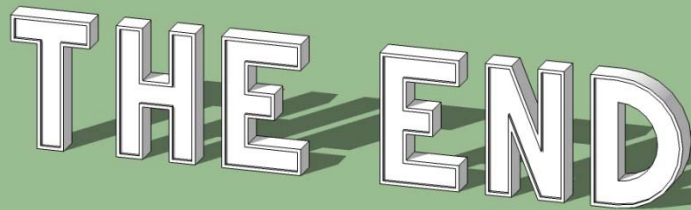
Layers Toolbar

Layer Manager

SketchUp 7 Quick Reference Card

Same Text – Different Styles

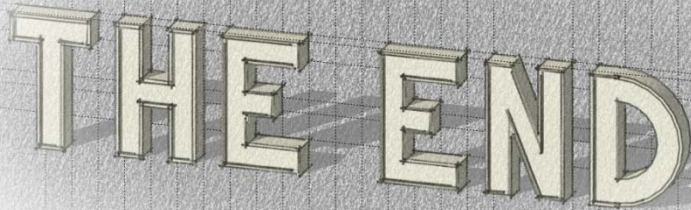
(Select *Styles* from *Windows* drop-down menu)



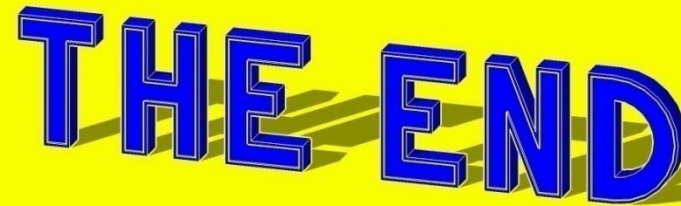
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THE END



THE END

Dartmouth College Models in Google Earth

This is done by importing photos to S-Up, using them to design models, pasting the pictures on the model, and then planting them in Google Earth. One can then take a 3D tour of campus.

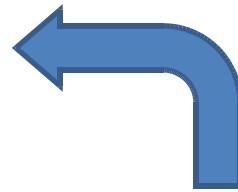


Modeled in SketchUp by Joe Zhe (Swamp Road Woodworking, Worthington, Ma) and made photo-like by William Manning (IDX Division of IMSI/Design) using IDX Renditioner [IDX has a free version if you register]



Rendered with
V-Ray for S-Up

(V-ray appears to be among the
top of the line and costs ~\$700)



Also there is a standalone **freeware** renderer called Kerkythea available at
http://www.kerkythea.net/joomla/index.php?option=com_remository&Itemid=43