



Palette 1 (BASIC OPERATIONS)

- selection (pointer) tool (**X**)
- component maker
- bucket (**B**)
- eraser (**E**)
 - click to erase
 - Rclick > Hide -or Soften

Palette 2 (BASIC DRAWINGS)

- pencil (line) (**L**)
- freehand tool
- rectangle (**R**)
- rotated rectangle
- circle (**C**)
- polygon
- arc tool 1: centre, radius, sweep
- arc tool 2: start, end, bulge
- arc tool 3: start, any mid point, end
- arc tool 4: same #1 but draws surface

Palette 3 (COMPLEX MODIFIERS)

- Move (**M**)
- Push/Pull (**P**) (opt **P** is push copy)
- Rotate (**Q**)
- Move (**M**)
 - copy/move (option **M**)
 - multiply (opt **M**, **CLICK**, **CR**, **x#**, **CR**)
 - divide (opt **M**, **CLICK**, **CR**, **/#**, **CR**)
- Follow Me
- Scale (**S**)
- Offset (**F**)

Palette 4 (NOTATION & MANIPULATIONS)

- measuring tape (**T**) (chalk line)
- dimension
- protractor (chalk line)
- notation tool
- axis tool
- extruded signage

Palette 5 (MOVE and SEE)

- Orbit tool (**PUSH** your wheel or **O**)
- Hand (PAN) (**Space Bar**)
- Zoom in/out (**WHEEL**)
- Zoom Extents (**Z**)
- Zoom Selection
- Zoom to previous

Palette 6 (VIEWS AND TOUR)

- Position (set eye height)
- View about
- Walk
- Section

3 click



DAY ONE

LEARN MOUSE, SHORTCUTS, + A FEW TOOLS

DEMONSTRATIONS

- Website, Youtube, Podcasts
- Peter draws a small object (10 minutes)

INTRO

- (**X**) selection tool
- orbit tool (**PUSH** your wheel or **O**)
- (**space bar**) hand (pan) tool
- zoom (cursor on object, then **SPIN** mouse wheel)

- KEY Use the mouse as much as possible**
- KEY Learn keyboard shortcuts ASAP (there aren't many)**

JUMP IN: Start a set design featuring a raised throne and 3 steps up to the throne. (20 minutes)

BUILD ON: Tips

- bottom left are clues
- bottom right are dimensions
- mouse hovering yields clues

BUILD ON: New Drawing Tools

- (R) rectangle
- (C) circle
- polygon
- (T) tape
- protractor
- arcs

BUILD ON: Selection tool

- **CLICK** to select
- **DOUBLE CLICK** gets skin and border
- **TRIPLE CLICK** get all touching (contiguous)
- **DRAG** from L2R: get any enclosed
- **DRAG** from R2L: get any touched
- **SHIFT+HOLD: CLICK** to collect

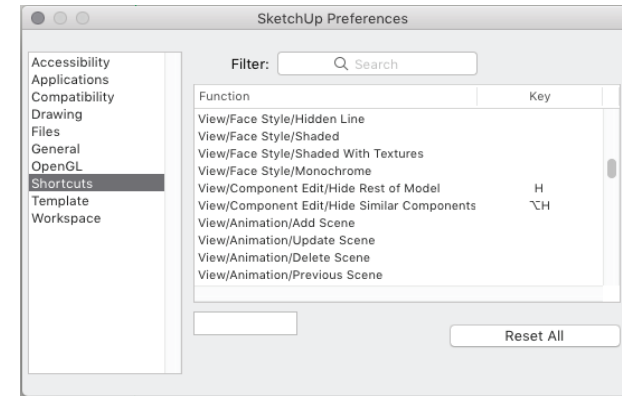
KEY Learning Good Selection is V IMPORTANT

KEEP MOVING: Continue set design featuring a raised throne and 3 steps up to the throne. (20 minutes)

BREAK LUNCH 12 to 1

BORING (BUT IMPORTANT) FILE INFO

- Preferences
 - select Template: architectural design, inches
 - select Drawing: click-move-click and continue
 - shortcuts: generally use the defaults
- View > Various
 - Palettes, Large Tool Set (look check)
 - Hidden Geometry (turn ON)
 - Section Planes (turn ON)
 - Section Cut (turn ON)
 - Axes (turn ON)
 - Guides (turn ON)
 - Shadows (turn OFF)
 - Edges (turn ON for this seminar)



POWER UP: Add these shortcuts: H for HIDE, option H for Hide Similar Components, Z to Zoom extents.

BUILD ON: New Modifier tools

- move
- option move
- option move multiply, option move divide

KEY This is a Fundamental Concept

BUILD ON: Extensions Warehouse

KEEP MOVING: Complete Throne Room by adding additional elements.

FREESTYLE/BREAK 30 MINUTES

BUILD ON: Groups and Components

- groups solve stickiness
- never make a copy of a group (use component)

KEY Groups and Components are key to managing complexity (more later)

ASSIGNMENT DUE TOMORROW

.1 On YouTube, search for Aidan Chopra SketchUP videos.

.2 Experiment with tools. Design/construct a salt and pepper shaker set.

KEEP MOVING: Start assignment

DAY TWO

REINFORCE MOUSE USE, NEW TOOLS, AND KEY CONCEPTS.

RECAP MOVING ABOUT

- select
- orbit
- hand (pan)
- zoom in/out
- zoom extents

RECAP TOOLS

- pencil
- eraser
- rectangle
- circle
- move and option move

BUILD ON: NEW TOOLS

- scale tool

JUMP IN: Start a new set design which uses your salt and pepper shaker, but scaled to be the height of 1.8 meters. (60 minutes)

BIG PICTURE: Inferencing and axis control are at the Heart of SketchUP!

- refers to some tools: line, circle
- right (is red) arrow, left arrow, up (is sky) arrow
- use 3 axis move
- use Z when lost
- start move in other direction if crowded.

BUILD ON: NEW TOOLS

- bucket
- rotated rectangle
- follow me

BUILD ON: Groups and Components revisited

- Groups and Stickiness
- Components

KEEP MOVING: Continue set design

BREAK LUNCH 12 to 1

KEEP MOVING: Using scenographer's base drawings (you will receive a copy of the Bus Stop Scenographic Base), incorporate your set design in the theatre space.

BUILD ON: NEW TOOLS

- dimension
- push/pull
- follow me
- rotate

KEEP MOVING: Complete the set design for Salt and Pepper.

FREESTYLE/BREAK 30 MINUTES



3 click



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- Push/Pull (P) (opt P is push copy)
- Rotate (Q)
- Move (M)
 - copy/move (option M)
 - multiply (opt M, CLICK, CR, x#, CR)
 - divide (opt M, CLICK, CR, /#, CR)
- Follow Me
- Scale (S)
- Offset (F)

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DAY ONE

ASPIRATION: REFRESH TOOLS, DRAW W/ MORE PRECISION

DEMONSTRATIONS

- Website, Youtube, Podcasts
- Peter draws a rudimentary set design... while reviewing the most important tools

BORING SET UP STUFF

- Template sets the DEFAULT units for your model
 - use mm, M, ', ", for other "odd" dimensions

JUMP IN: Start a set design featuring a conference room with a table and 2 chairs and a window to "freedom" (20 minutes).

POWER UP: Add these shortcuts: H for HIDE, option H for Hide Similar Components, Z to Zoom extents.

MOVING ABOUT using the mouse:

- orbit tool (push wheel or O)
- hand (pan) tool (Rclick and select) like truck/dolly
- zoom (mouse wheel)
- Rclick s context menu

CUSTOMIZE:

- Your toolbar should have this:



L~R: X-Ray, back edges, wire-frame, hidden lines, shaded, textures, monochrome;

KEY The wire frame is the least demanding on your computer, the shaded w/ textures the most.

- ADD: UNdo, REdo



- AND THIS one too:

KEY The sun uses up tons of computer horsepower

REFRESH

- selection (pointer) tool
 - click to select
 - double click gets skin and border
 - triple click get all touching
 - drag from L2R: get all enclosed
 - drag from R2L: get any touched
 - hold-shift click to collect
- Move (M)
 - simple move
 - copy/move (option M)
 - multiply (option M, click at 1st dupe, x# dupes)
 - divide (option M, click at last dupe, /# dupes)
 - guidelines (tape and protractor)
 - similar to chalk lines in construction
- Copy and Paste/Paste in Place

- (pointer) tool
 - click to select
 - double
- Hover over point/line to get info
- Touch and drag for inference
- Hints are in **lower left of drawing window**
- Dimensions are in **lower right of drawing window**
- Enter dimension using lower right window:
 - for tools expecting one dimension, just enter it
 - for tools expecting 2 dimensions, enter comma separated
 - for circle or polygon, enter number of sides before drawing, radius after drawing.

KEEP GOING: Develop the conference room with a table and 2 chairs and a window to "freedom" (20 minutes).

Break (and freestyle) 30 minutes

1.3 Concepts (Refreshed and New)

Groups

- Trumps stickiness
- Ensures that things move together
- **Command G** or **right click**
- Never **ever** copy a group, make a component instead
- Ungroup? **Explode**

Components

- like groups, these are stand-alone object(s)
- all tools available when working "within" a component
- outside the component, scale and bucket are available
- Peter Demonstrates making a component

3D WAREHOUSE

- some models are poorly scaled,
- some come with lots of "junk" attached, and
- some are embarrassingly bad.
- Peter demonstrates downloading a Honda Civic, the TREVI FOUNTAIN, and a POTTED PLANT.

Freestyle and Break 30 minutes

HOMEWORK ASSIGNMENT:

Check out: YouTube> SketchUP Aidan Chopra

-and-

Using GROUPS AND COMPONENTS, construct a circular stair with a balustrade which connects two floors in a house. The floors are 9 ft floor to floor and there are to be 14 risers.

Be sure to use "Hide" to remove from view any overlapping lines.

-and-

Take a full body (head to toe) photograph of yourself to a fairly high resolution (iphone is OK, but better with a DSLR and a longer lens). Try to use a neutral background. Even better: chroma-key color like bright green and then photo-shop that to neutral or (even better) an alpha channel transparency. Bring to the next class.

DAY TWO

ASPIRATION: DEALING WITH COMPLEXITY.

IMAGE IMPORT

The same image can be used in three ways:

- .1 image
- .2 texture
- .3 matched photo (later...much later)

- "Image" is as if you imported a picture on a sheet of card stock. It is a group and can be scaled, but not much else.
- "Texture" is more interesting. The image is a scalable and tileable surface which can be used in many ways. It is applied to a surface and becomes a tileable image on that surface.

JUMP IN: Import your head-to-toe picture as a **Texture** and adjust it to your height. Use the freehand tool to outline the image and trim the object. When you are happy with the trimming, make this a component. Make sure to make the component a "face-me component".

BUILD ON:

- lack of horsepower (computer power)
 - turn off the sun
 - use low-poly models
 - group and layer (group viz)
- dealing with groups and components
 - never copy a group, make a component
- dealing with large numbers of things
 - relearn the select rules
 - download EXTENSION Selection Toys
- big and small scale items
 - model at 10 or 100 size
- getting "inside" a model
 - use layers (group visibility)
 - use section tool

KEEP ON: using your conference room set design, insert your image into teh set design. Note how this immediately gives scale to teh model and allows people to enetr th model.

Start now to put your model into Layers (Group visibility)

- .1 Select ALL and then get INFO (Command I). Make sure everything is on layer 0 (Zero).
- .2 Begin to group things in a rational way: floor, wall, Scene 1, Picturesque items, etc.
- .3 Experiment with Layers by turning on/off the layers to see what happens.
- .4 Always draw on Layer 0, Always draw on Layer 0, and of course Always draw on Layer 0,

Freestyle and Break 30 minutes



BUS STOP TRADE SCHOOL EVALUATION

Digital Drawing for Scenography
Presenter: Peter Henry

Seminar (circle one) : INTRO ADVANCED COMPLEXITY

What changes should be made to enhance/improve this program?

Evaluation:

1 = not at all; 2 = not really; 3 = maybe; 4 = yes; 5 = absolutely

- | | | | | | |
|-----------------------------------------------------------------|---|---|---|---|---|
| 1. The seminar met my expectations. | 1 | 2 | 3 | 4 | 5 |
| 2. The content was helpful. | 1 | 2 | 3 | 4 | 5 |
| 3. The level of the seminar was appropriate. | 1 | 2 | 3 | 4 | 5 |
| 4. The format was enjoyable. | 1 | 2 | 3 | 4 | 5 |
| 5. The speaker had a good understanding of the topics. | 1 | 2 | 3 | 4 | 5 |
| 6. The handouts were helpful. | 1 | 2 | 3 | 4 | 5 |
| 7. The seminar was worth my time. | 1 | 2 | 3 | 4 | 5 |
| 8. The length of the seminar was appropriate. | 1 | 2 | 3 | 4 | 5 |
| 9. I recommend that the seminar be repeated for other students. | 1 | 2 | 3 | 4 | 5 |
| 10. I would like to attend more seminars like this one. | 1 | 2 | 3 | 4 | 5 |

What additional information would you like to hear about?

What were the most useful aspects of the seminar?

Additional comments:

If you want to hear about more seminars like this, just provide your name and EMAIL:

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