Move, Copy & Rotate

Making a copy is faster than drawing. It's not cheating, it's efficiency.

Drawing parts is only half the battle in learning how to use SketchUp. In fact, it is less than half the battle. The real advantage to SketchUp (or any CAD program) comes from being able copy and change things that have already been drawn. If you know how to copy effectively, you will rarely need to draw more than half of any project. In addition, if you know how to change things efficiently, you can reduce drawing time further and explore variations that would take forever if you were using paper and pencil.

The most often used tools for modifying existing geometry in SketchUp are Move and Copy. Actually they are one tool with two distinct functions. Making a copy in SketchUp starts with moving something that already exists. Essentially you move an object, and leave a copy of it behind.

The Move tool icon is four red arrows, pointing in different directions and connected in the center. Move is used so often that you should learn the keyboard shortcut, even if it is the only one you ever use. The shortcut is the letter "M". You can also select Move from tool menu, but that's a slow way to use it.

There are two distinct ways the move tool works; tool first and select first. If you select the Move tool and hover the cursor over an object, the object selected will turn blue, and you can click and drag to move the object. This will only work on a single object and selecting what you want to move can be difficult if multiple objects are close to each other.

The other option, and the one you should use most is select first. Use the black arrow to select one or more objects, then select the Move Tool either by clicking on the icon or typing the shortcut "M". Then click and drag to move what you selected. This will work on multiple objects as well as individual ones.

This is an area where the different ways the selection tool works makes the difference between easily making the changes you want and frustration.

Here is a quick review of the methods for selecting multiple objects:
- Selected objects change color from black to blue. When an edge is a blue line, or a face is covered with blue dots you can modify it.
- Use the Shift key to add objects to the selection set.
- Bounding boxes select everything within them and are made by dragging from left to right.
- Crossing boxes select everything the box intersects and are made by dragging from right to left.
- A single click on an object selects only the object.
- A double click selects the object and every thing connected to it.
- A triple click selects an object, every other object connected to it, and any other objects connected to those.

To move selected objects, remember to work with axial inferences and point infer-
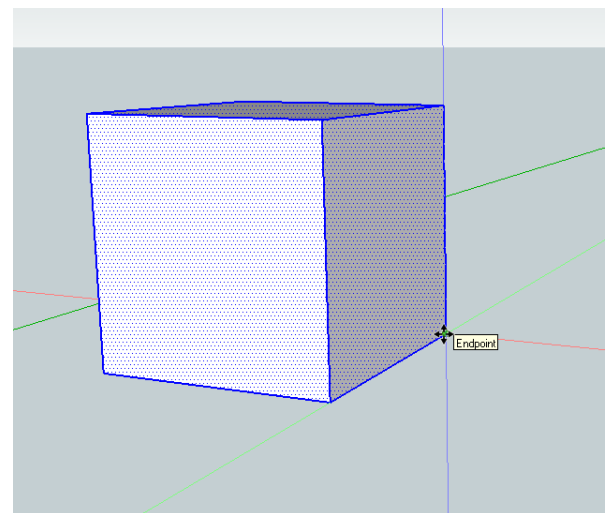
Remember that selected objects are highlighted in blue, and pick a specific point to move from.

ences. It is important when moving that you select a specific point to move from as well as a specific point to move to. You can grab objects anywhere you want to, even out in space and they will move, but you won't be able to end the move gracefully if you don't start on a distinct point.

Most of the time a corner or other intersection is a good point to grab. Think ahead to where you want to place the object you are moving, and use the point you want to line up to something else to start the move.

Try to make a move in one graceful step by zooming in and out during the move. Navigation commands such as Zoom, Orbit and Pan are transparent; you can use them in the middle of other commands without any ill effects. If you can't see where you're going, don't be afraid to move in to get a closer look.
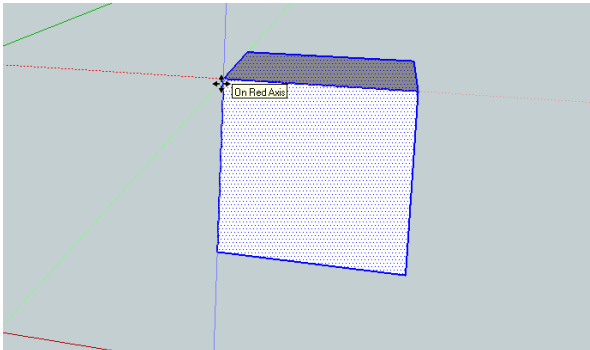

As you move, look for the colored axis inferences to keep you headed in the right direction.

Use the color inferences to move in the right direction. It can be difficult to make moves that aren't parallel to one of the colored axes. You may need to move in the red direction, then the green direction to hit your landing point. The shift key will lock the direction for you after a move has started. You can also lock in the direction of a move with the arrow keys, up and down will lock on the blue axis, the right arrow will force the move in the red direction, and the left arrow will keep the move in the green direction.

The measurements window works on moves the same way it does when you draw a line. Control the distance of a move by typing a dimension after the move has started, or immediately after a move. The number will appear in the measurements window, but you don't need to click in the window before you type. Just start moving and type the number. You can also type in a number immediately after making a move, as long as you hit the Enter key and before you do anything else.

The Power of Copying

Those are the basic functions of the Move tool, but it can do a lot more than simply shove stuff from here to there. The real power of the Move tool is in making copies of existing geometry. Don't confuse this with "copy and paste" found in most programs, and don't use "copy and paste" in SketchUp unless there is no alternative.
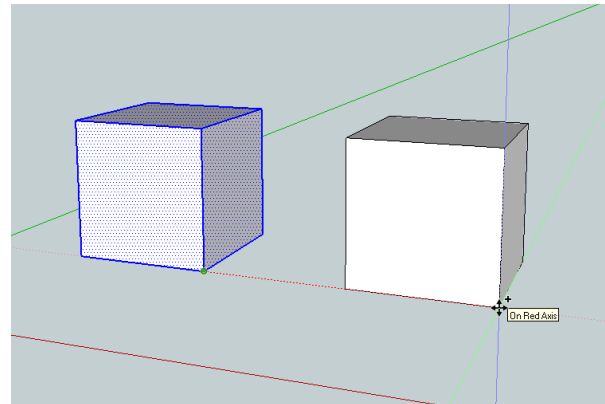

To make a copy, select the Move tool and press CTRL. A plus sign will appear next to the cursor to show that the Move tool is in Copy mode.

Making a copy starts the same way as making a move. Make a selection and invoke the Move tool, then hit the CTRL key (ALT on a Mac). A plus sign (+) will appear next to the cursor to let you know that the tool is in copy mode. Click on a point and drag, as you do when moving. The program will create an exact

copy of the object or objects selected at the second click point, or at a typed dimension.

In addition to making single copies, there are two ways to make multiple copies. To make multiple copies an equal distance apart, make a copy, but before doing anything else type the number of copies you want, then X, then hit Enter. The program will create that number of copies, spaced by the first move distance in the direction of the original copy.
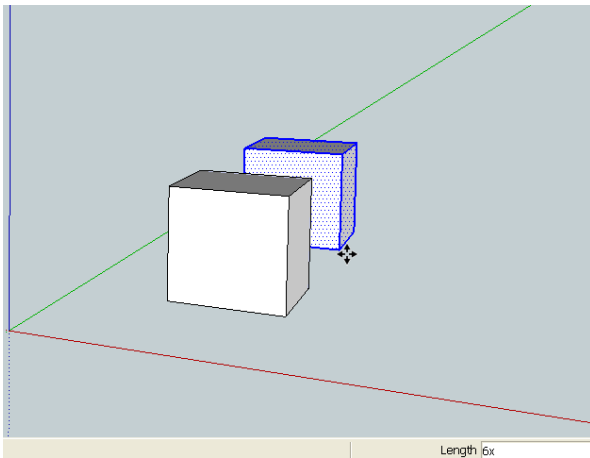
To make equally spaced copies, make one copy at the desired direction and distance. Click to end the command, and before you do anything else . . .
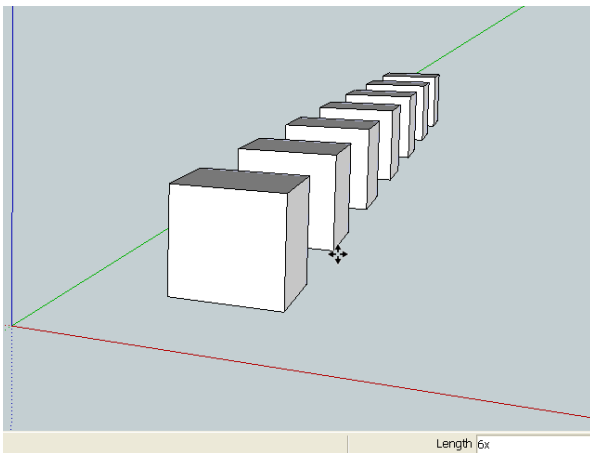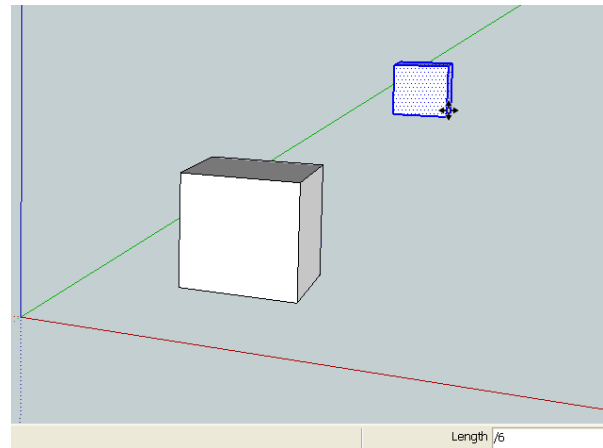
. . . type the number of copies you want, followed by the letter X, then hit enter. The copies will be spaced by the original distance.

If you want to make a row of something, like shelf pin holes or spindles, make a copy

and move it in the direction you want, using the center to center distance to place the first copy. When it is located, and before you hit any other key, type the number of holes or spindles you want, followed by the letter X and when you hit enter the copies will appear.

You can also make multiple copies that are equally spaced between the original object and the first copy. This is the way to make equally spaced shelves in a cabinet,

SketchUp can make copies an equal distance apart in between the original object and the first copy. Begin by making a single copy, then . . .
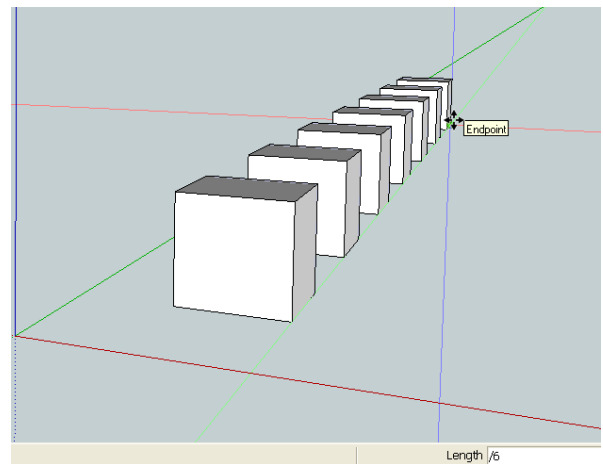
. . . before doing anything else, type a forward slash followed by the number of spaces you want between the first object and the copy.

for example. After making a copy, but before doing anything else, type a forward slash (/)

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followed by the number of spaces desired between the first and last copy. SketchUp will create the copies in between. Typing /4 will make 3 copies and 4 equal spaces between the original object and the first copy.

There is another function called Auto-Fold that adds geometry in some cases when faces are moved. You can make a raised panel by drawing a thin panel, and offsetting a face
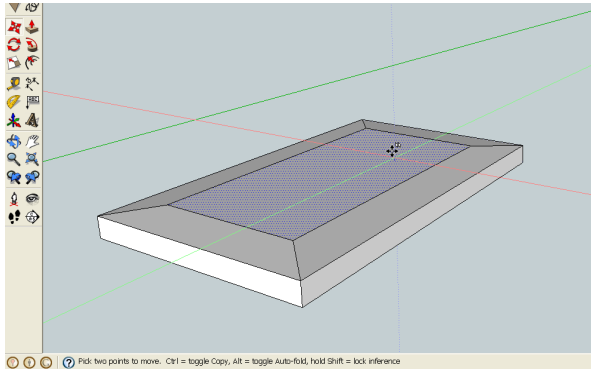
Auto-fold creates additional geometry when you move a face. Press the Alt key after beginning the move function.

within the face of the panel. Select the face and adjoining edges and start to move up.

After you start moving, press the ALT key to toggle Auto-Fold on. You'll see an indication next to the cursor, and as you move, lines connecting the corners and additional faces (the bevels around the panel) will be added to the drawing. This is an easy way to make a truncated pyramid shape, but you likely won't use it often.

The Rotate Tool

The Rotate tool has similar functions to the Move Tool, but instead of moving objects along a straight line, it rotates objects about a pivot point. The icon is two circular arrows on the Toolbar, and the keyboard shortcut is the letter "Q". If you need to, you can also select Rotate from the Tools menu.

On screen, the cursor looks like a circular protractor, and setting the rotation axis can be tricky. The protractor that appears will change color and orientation to show which

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<div style="text-align:center; background:#F5C842; padding:8px; font-weight:bold;">Click on Image Below to Play Video: Making Copies</div>