

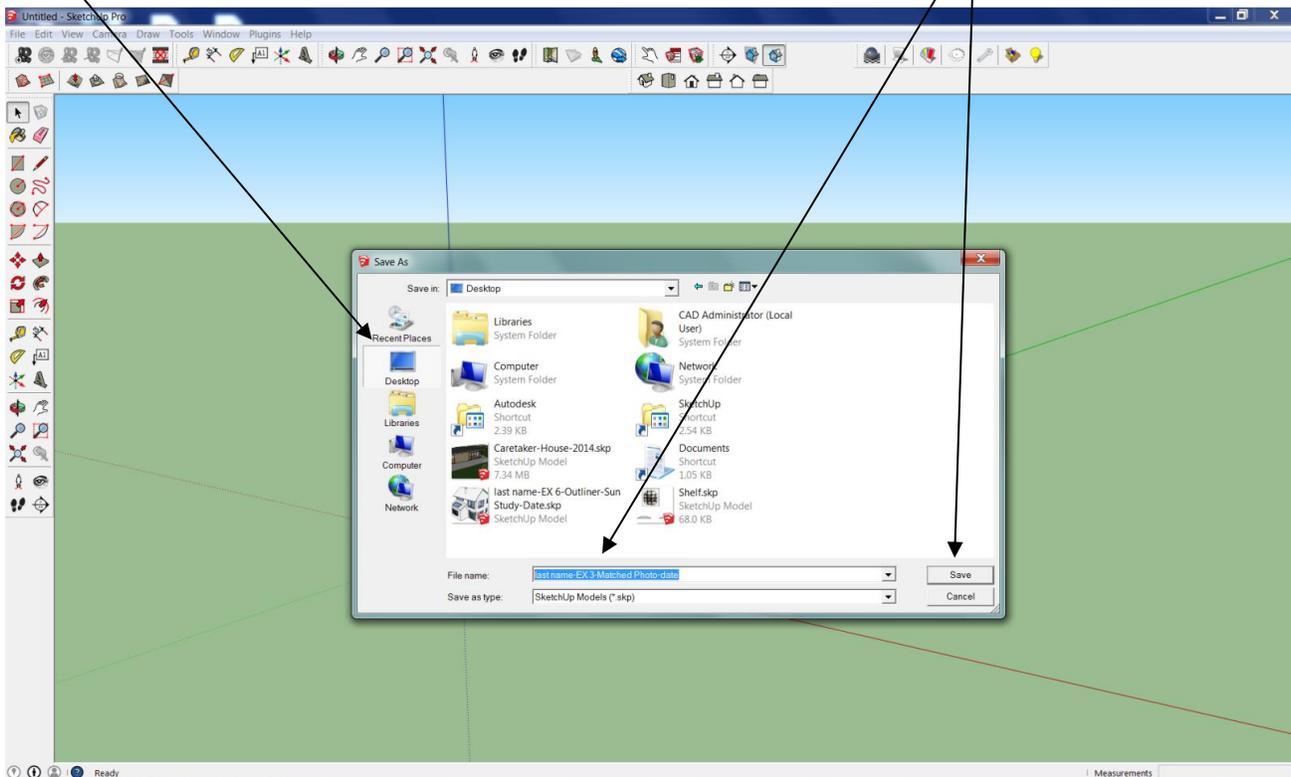
Advanced SketchUp Exercise - Matched Photo

***** PLEASE READ AND LOOK AT ALL PAGES BEFORE STARTING *****

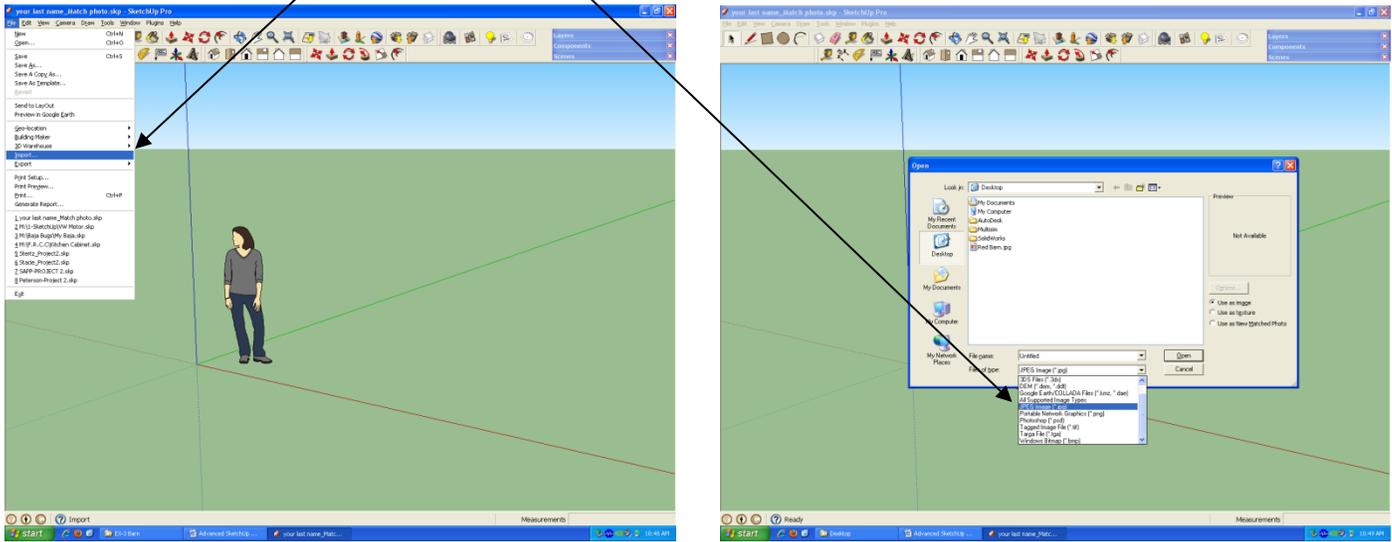
1. Download the image file called "**Red Barn.jpg**", "**White Barn.jpg**" and "**Modern-Kitchen.jpg**" and save them to your desktop.



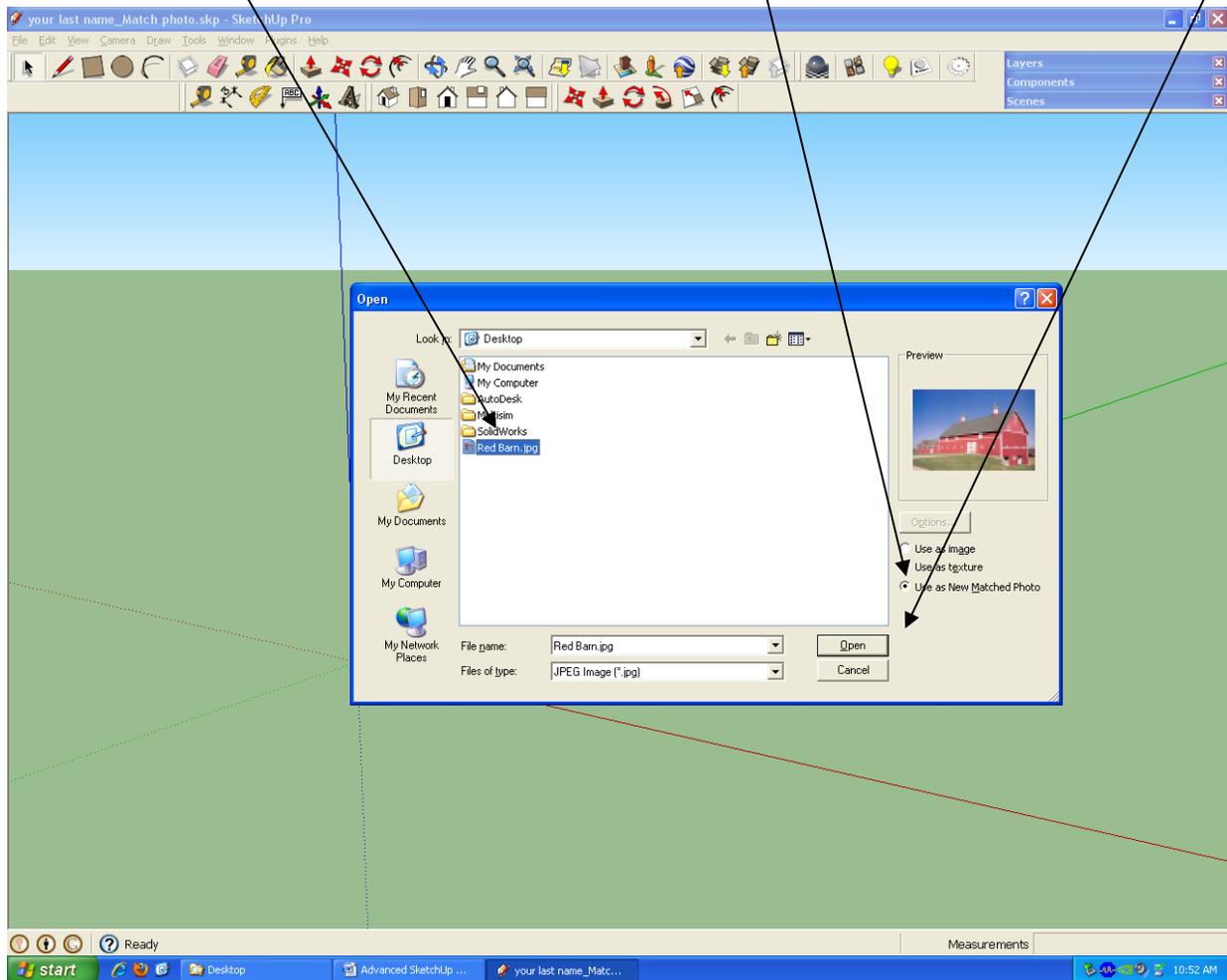
2. Open a blank "**SketchUp**" session and save your file as "**last name-Matched Photo-date**" to on your desktop.



3. Select **“File<Import”** in SketchUp and find the **“Red Barn”** image on your desktop. You will need to change the **“Files of Type”** to **“jpg”**. (Your model may have **“Stacy”**, or an older version character displayed).



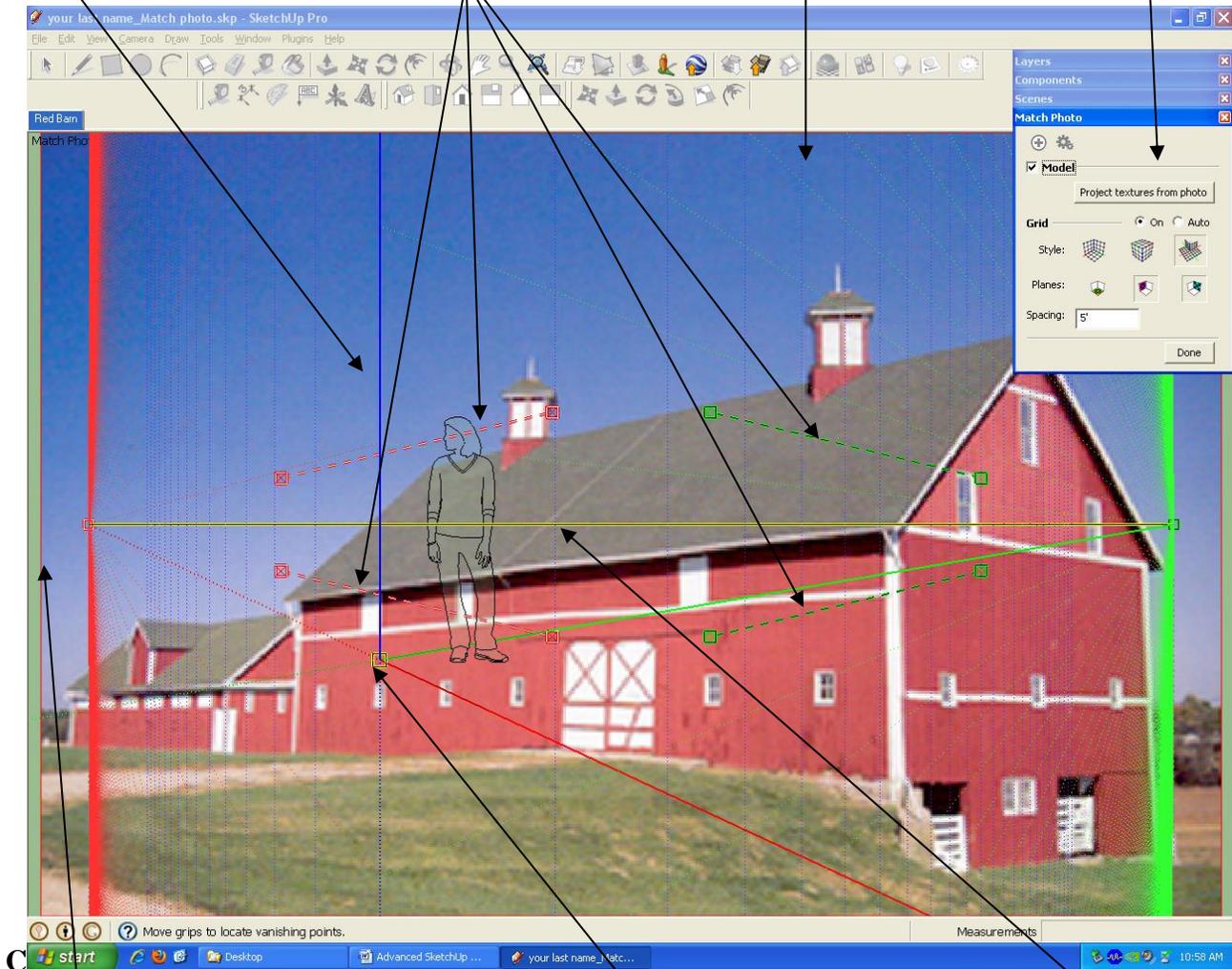
4. Select the **“Red Barn”** image be sure to check **“Use as New Match Photo”** and then select **“Open”**.



- After the image loads, then select the “**Window < Match Photo**” toolbar and expand and move it so it is in the upper right corner. **Save your model.**

What you are looking at is the:

Scale Line/Vertical Axis Perspective Bars Photograph Match Photo Dialog Box



Vanishing Point Grip

Axes Origin

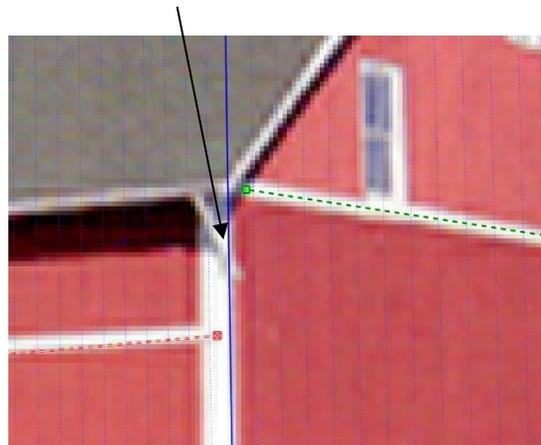
Horizon Line

- Begin by positioning the bottom **(2)** two “**Green**” perspective bars, by lining them up with any two parallel edges (the tops and bottoms of windows are good candidates, as are rooflines, tabletops, and ceiling tiles). Take a deep breath-this is easier than it looks. You move each perspective bar one at a time, dragging each end into position separately. The following tips can help you get the bars positioned correctly.
 - Zoom in and out (using the school wheel on your mouse) to get a better view of your photograph while you’re placing your perspective bars. The more accurate you can be, the better things will turn out.
 - You can anytime select the “**Red Barn**” scene tab to go back to a Zoom Extent of the photo.
 - Pick nice, long edges in your photograph to match your bars to; you’ll get better results that way.

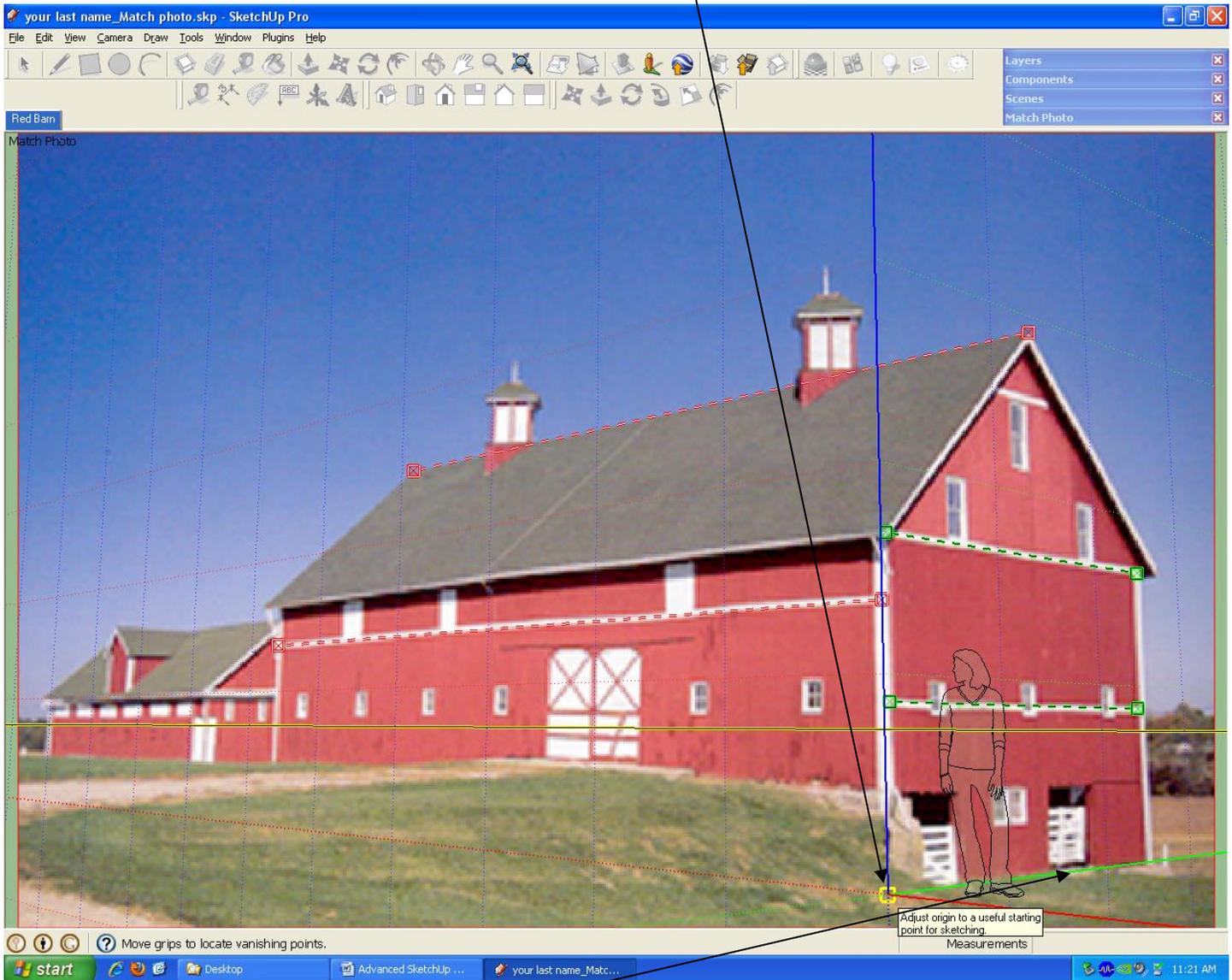
7. Line up the **(2)** two **Red** perspective bars with a different set of parallel edges on the photo. Left-click the end points on the bars and place them in the same place as below.



(Note: you can roll your mouse and “Zoom” into an area to see a closer view to adjust them).

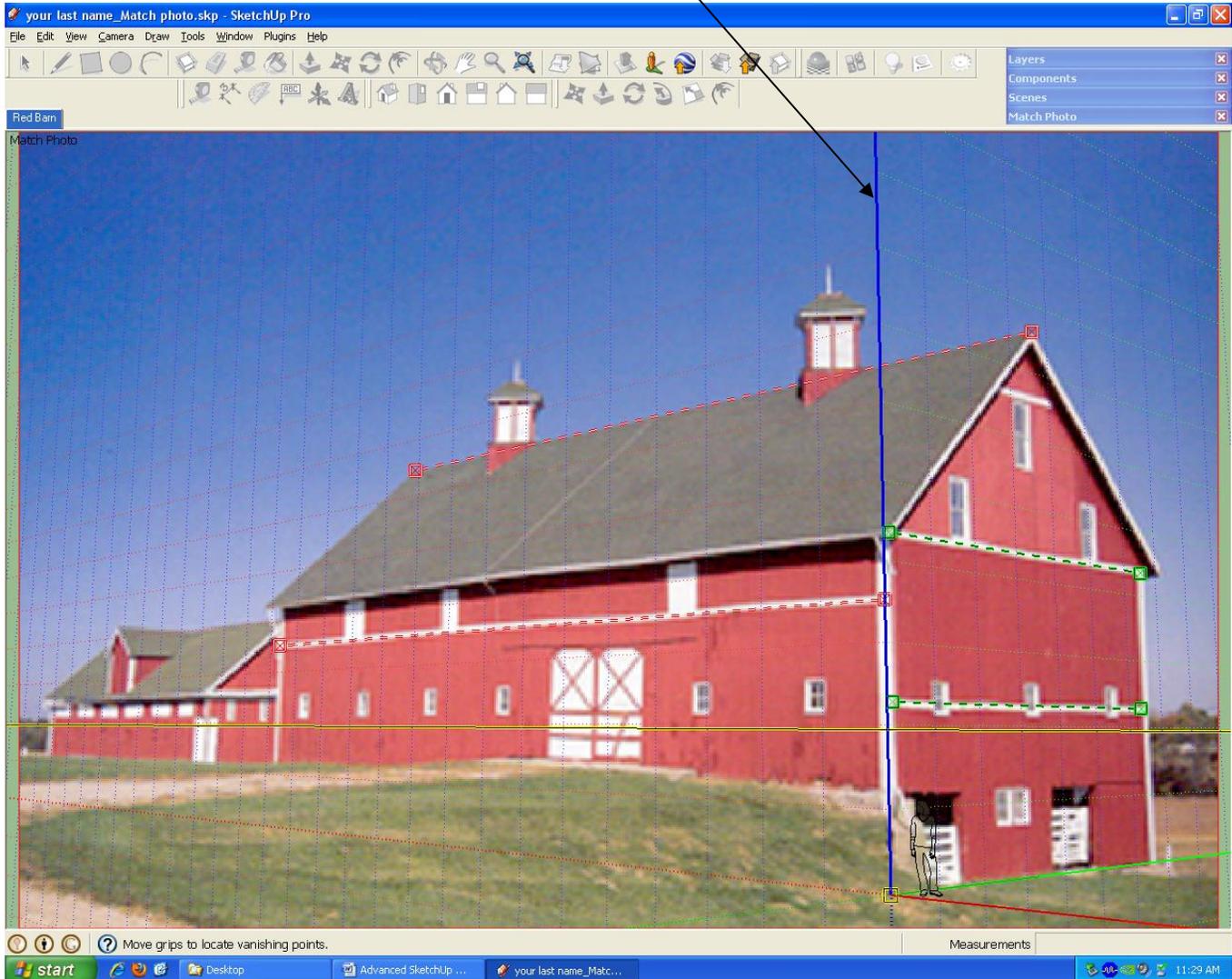


8. **Left-click** and drag the axis origin (the little “**yellow**” square where the axes come together) to a place where your building touches the ground and aligned with the corner of the building.



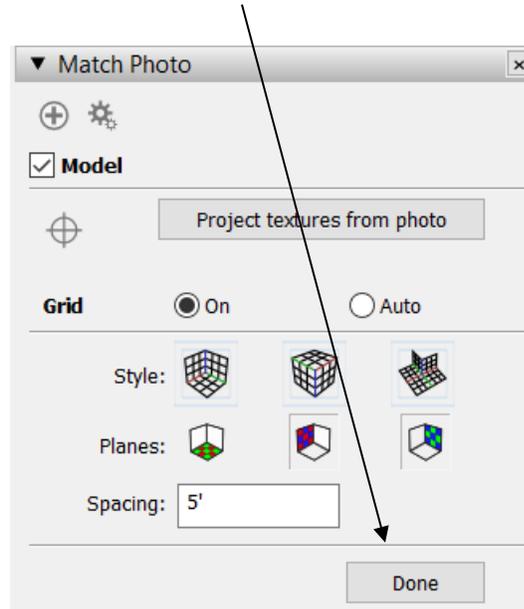
(Notes: Try and move this so the “**Green**” horizontal line is close to the ground and, the “**Blue**” vertical line is in the middle of the corner of the building). This is how you tell SketchUp where the ground plane is. Try to make sure your axis origin is right at the intersection of (2) two perpendicular edges-this will make things easier later. Don’t worry about size of Stacy (or your character) right now; you’ll deal with that in a moment.

9. Set the scale of your character by **“left-clicking”** and moving your mouse up or down anywhere along the blue scale/vertical axis line to size the Axes until your character looks to be at about the right scale in relation to the door. Most doors are 6’-8” and knowing the height of the character can help you judge the right height. You do not need to be exact as we can scale the SketchUp model up or down later.



(Notes: You do this by first setting your grid spacing in the Match Photo dialog box and then using the grid lines in your modeling window to “eyeball” the size of your photo until it looks about right.). Because we know Stacy is about 5’-6” and the large white barn door is about 6’-8”-7’, you can adjust everything to look close enough. You don’t have to be exact at this stage of the game. You can always scale your model later using the Tape Measure tool later. Remember we do not need to be exact at this time.

10. Click the “**Done**” button in the Match Photo dialog box. When you click the “**Done**” button, you stop editing Match Photos Axes and settings. All the colorful lines and grips disappear, and you’re left with the photo you brought in and your model set to new axes. It may seem complicated, but what you did was pretty simple. Using Match Photo, creates a scene with a camera position and lens settings that match the ones used to take the picture that’s on your screen. In effect, you’re now “**standing**” exactly where the photographer was standing when the photograph was taken. **Save your model.**



11. Let’s look at the “Match Photo” dialog box. There is a plus symbol (+) to add another scene and a large and small gear symbol that will turn on the Axes, Perspective bars, etc. back on. You can check or uncheck the “**Model**”, we can also “**project the textures from the photo**” onto our model once we have drawn it. You may turn on and off the “**Grid**” lines, also we can select the “**Style**” to match an angle of our photos from “**inside**” to “**outside**”, we may change the “**Planes**” to look at different ones. Last, we can adjust the “**spacing**” of our grids, perhaps from 5’ to 10’ if we want to.

12. Setting up the photo was just the first step. Now it’s time to use SketchUp’s modeling tools (with a little help from Match Photo dialog box) to build a model based on the photograph you “matched”. Here are a couple of basic concepts to keep in mind when doing this.

- a) It’s **not** a linear process. Building a model using Match Photo entails moving between drawing edges, orbiting around, drawing some more edges, going back to your Match Photo scene, and drawing yet more edges. Every photo is different, so the ones you work with will present unique challenges that you’ll (hopefully) have fun figuring out.
- b) Don’t forget the photo textures. By far one of the best features of “**Match Photo**” is its ability to automatically photo-texture your model’s faces using the photograph as your paint.

13. Now let's start building the barn model with Match Photo. Click the Match Photo scene tab to make sure that you're lined up properly. If you orbit away from the vantage point you set up with, you'll know it; your photograph will disappear. You can easily get back by clicking the scene tab for your Match Photo. It's labeled with the same name as your photo, and it's at the top of your modeling window.
14. With the line tool draw a line starting at the "**Origin**" point right to left, then vertically and back over to the "Origin" point on your photograph. Make sure that you're drawing in one of the (3) three directions: **red**, **green**, or **blue**. It's a good idea to start drawing at the axis origin. (It'll help to keep you from getting confused). You will notice a face has appeared when you have drawn (4) four lines.



(Notes: The key here is to make sure that you keep watching the color of your edges as you draw. You always want to see your lines you are drawing when you're starting out. Be careful NOT to orbit while you're drawing-if you do, select the "Scene" tab and repeat the previous step and keep going. You can zoom and pan all you want, though at any time.

15. Select the **Push/Pull** tool and select the wall you just drew and **Push/Pull** it over to the left until it is matching the photo as to the end of the large building. **Save your model.**



16. Continue drawing lines now for the roof, remember you may zoom in and out as you do this. It is OK if your lines do not align with the photo currently. Start at the “**Mid-Point**” of the top of the building you drew and draw a line up the “**Blue**” axis and over to the right corner, a face should appear at this point. **Save your model.**

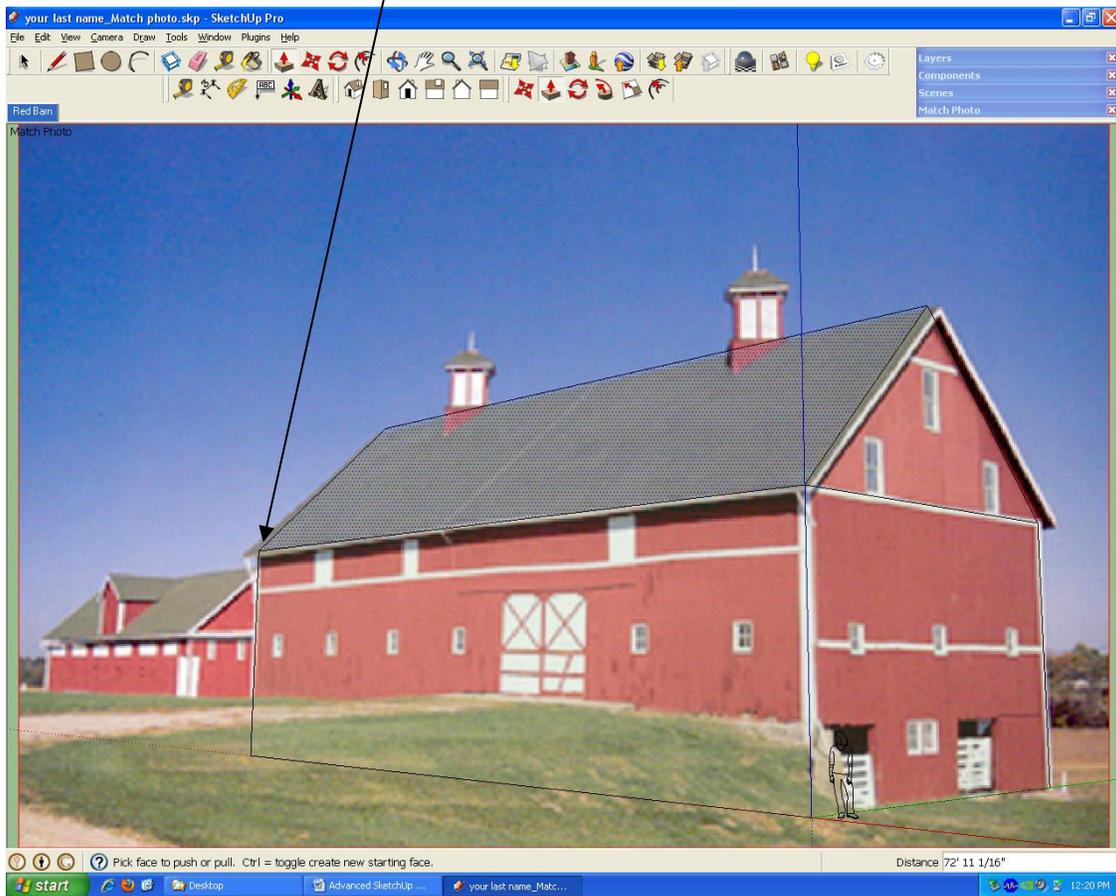


17. Then draw another line over to the left corner which should create another face. Erase the first middle line you drew. **Save your model.**

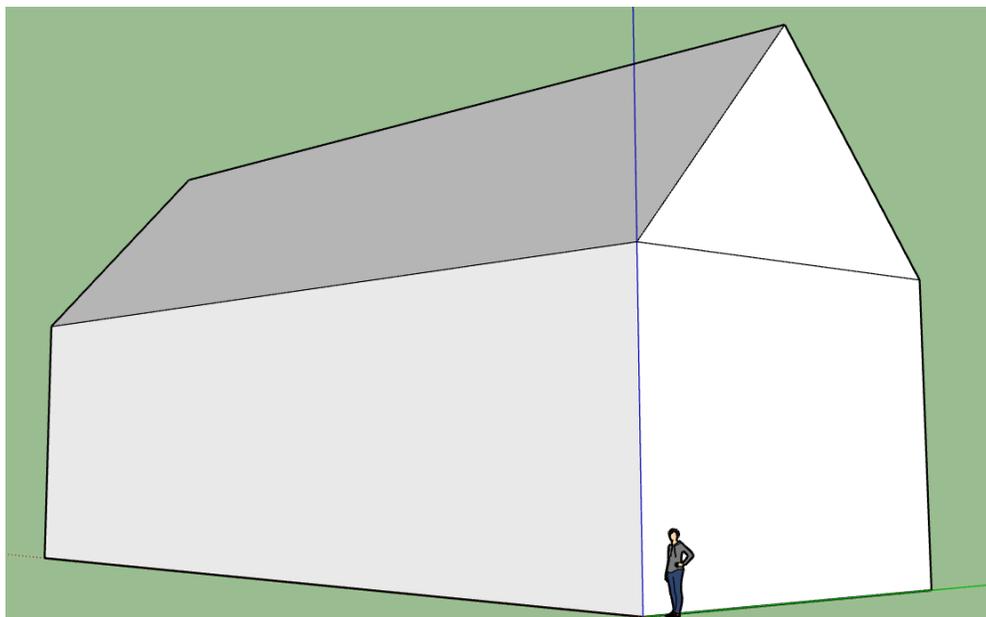


18. Select the **Push/Pull** tool and **Push/Pull** it over to the left end of the building you drew.

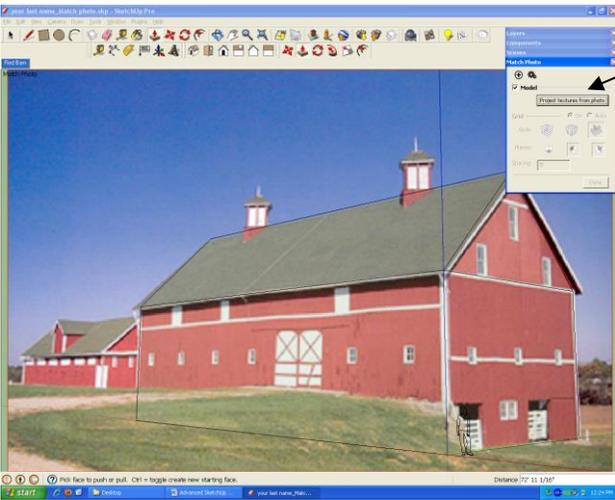
Save your model.



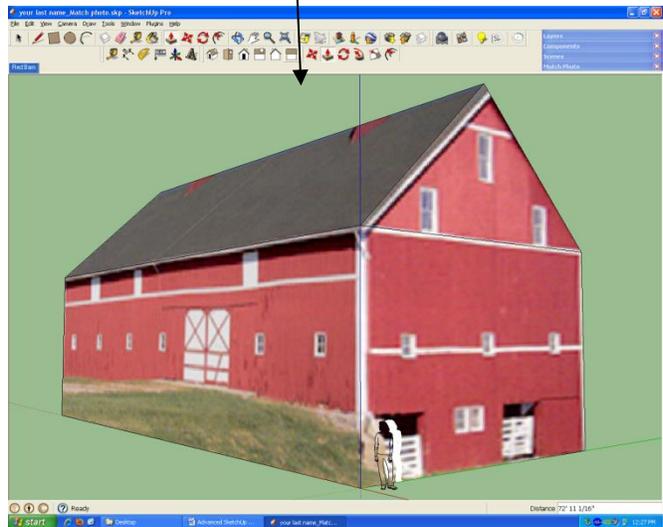
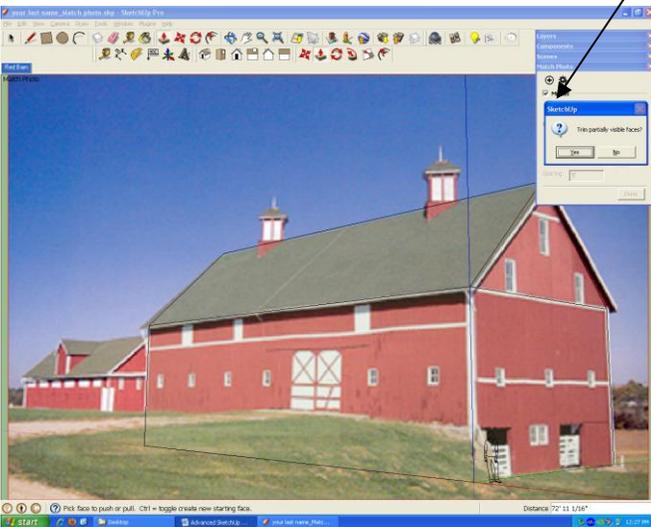
19. Orbit now and you should see a building drawn as close as possible to the photograph that looks like this. Remember it will not be exact!



20. Select the **“Red Barn”** scene tab and select the **“Project textures from photo”** button and select **“Yes”** to the **“Overwrite existing materials dialog box”**.

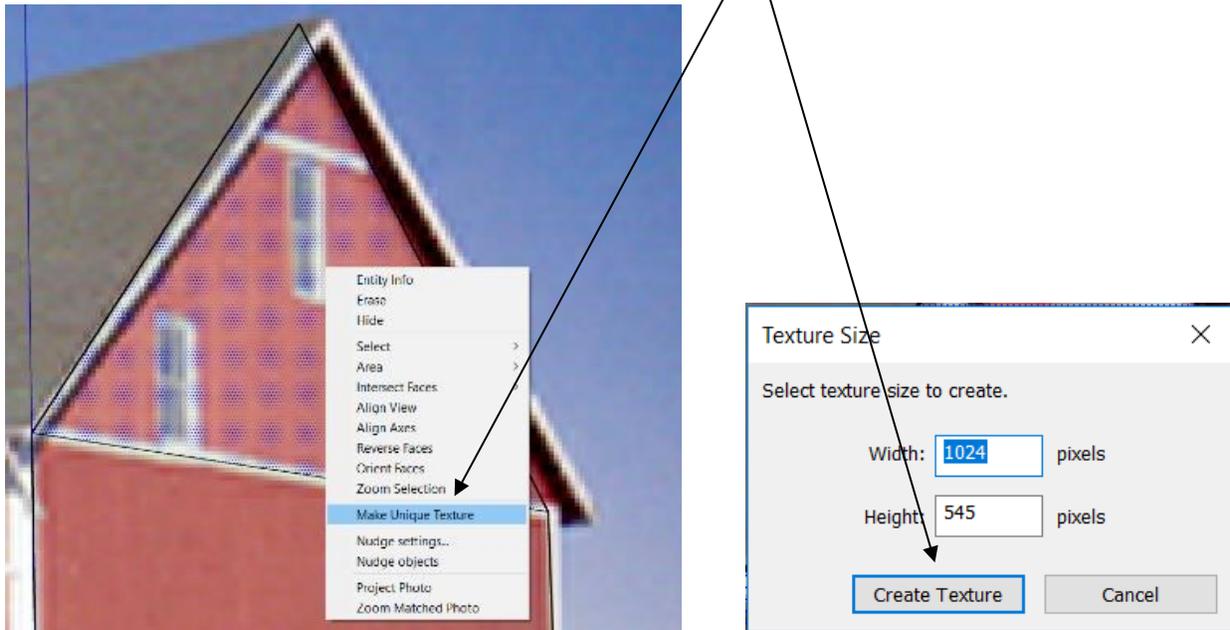


21. Then select **“Yes”** to **“Trim partially visible faces”**. Minimize **“Match Photo”** and **“Orbit”** a little. You should now have a barn drawn from the photograph and the textures of the photo should be on the barn. **Save your model and close it.**

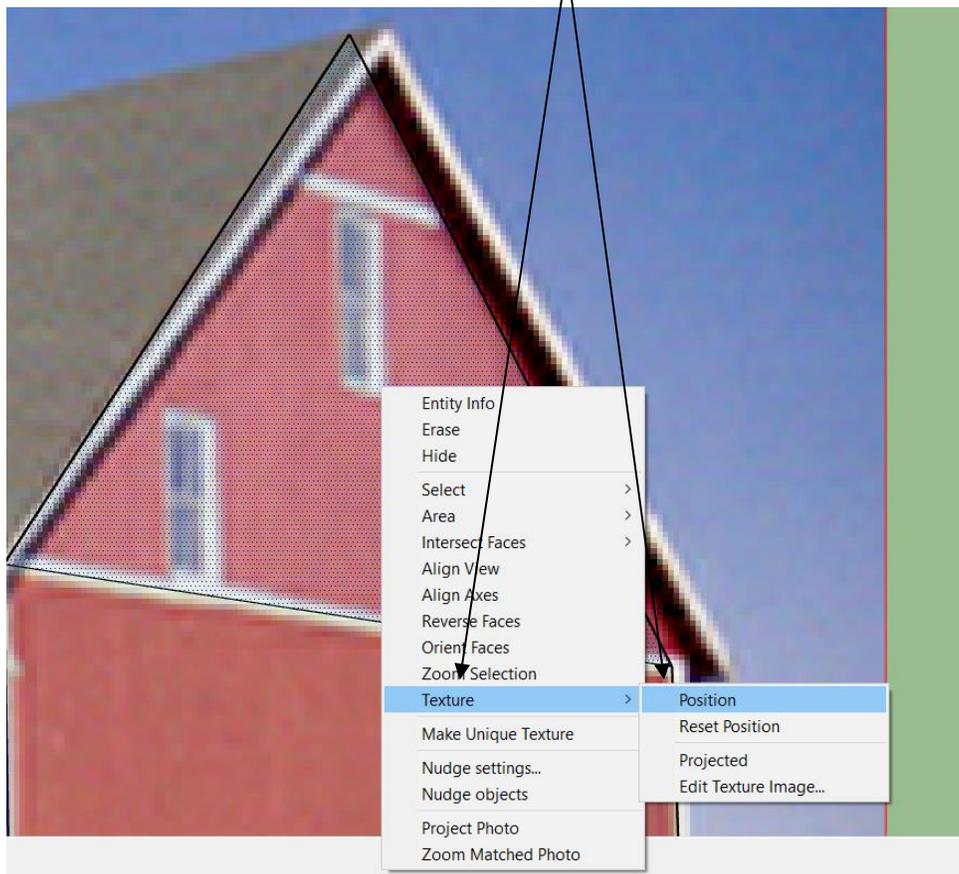


22. Success! You have just drawn a 3D model from a 2D photo of a 3D object! Truly Amazing!

23. If your images on faces do not align well, you may select a face with an image on it and adjust it to be closer to actual. Right-click on a face and select “**Make Unique Texture**” and a dialog box will open. Select “**Create Texture**”.



24. Now Right-click on the image again and select the “**Texture**” option and the “**Position**”.



25. Your model will look like this, with four (4) colored pins attached to an area on your model. We can left-click and hold down on a pin and they will attach to your mouse and allow you to adjust the image, by either “Rotating”, “Distorting”, “Moving” or “Scaling” it. Left-click a pin to adjust the image to fit correctly on the shape you drew.

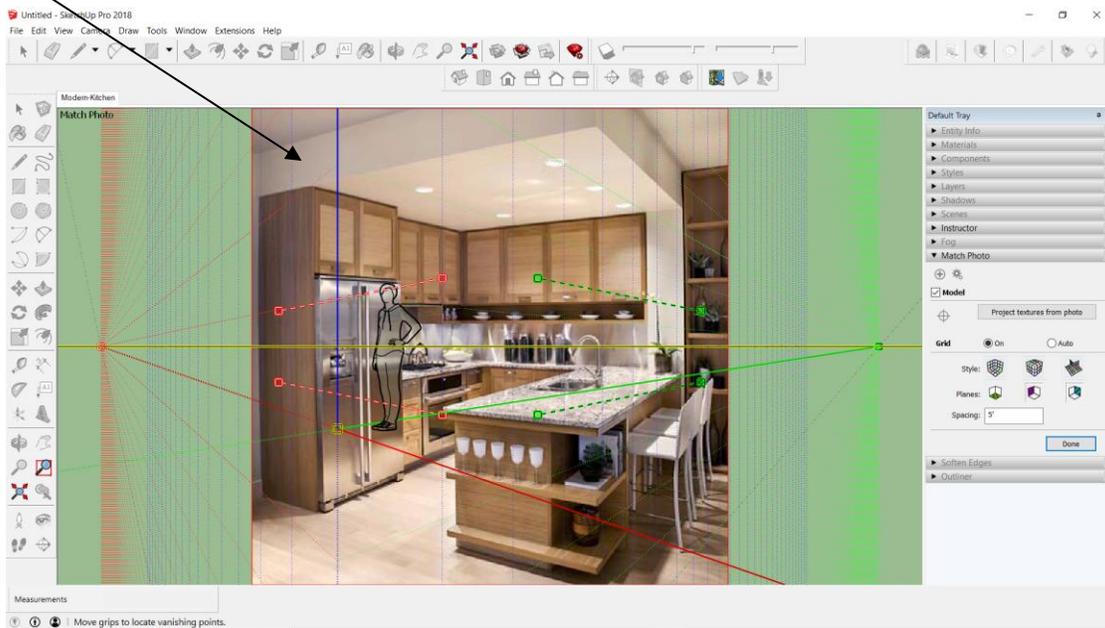


26. This takes practice and may be a little confusing at first. Each face now has an image on it and you may select that image position and adjust each one to match the shape. Practice on an image and then move on to a different face and that image. Be sure to “**Save**” your model after each image adjustment.

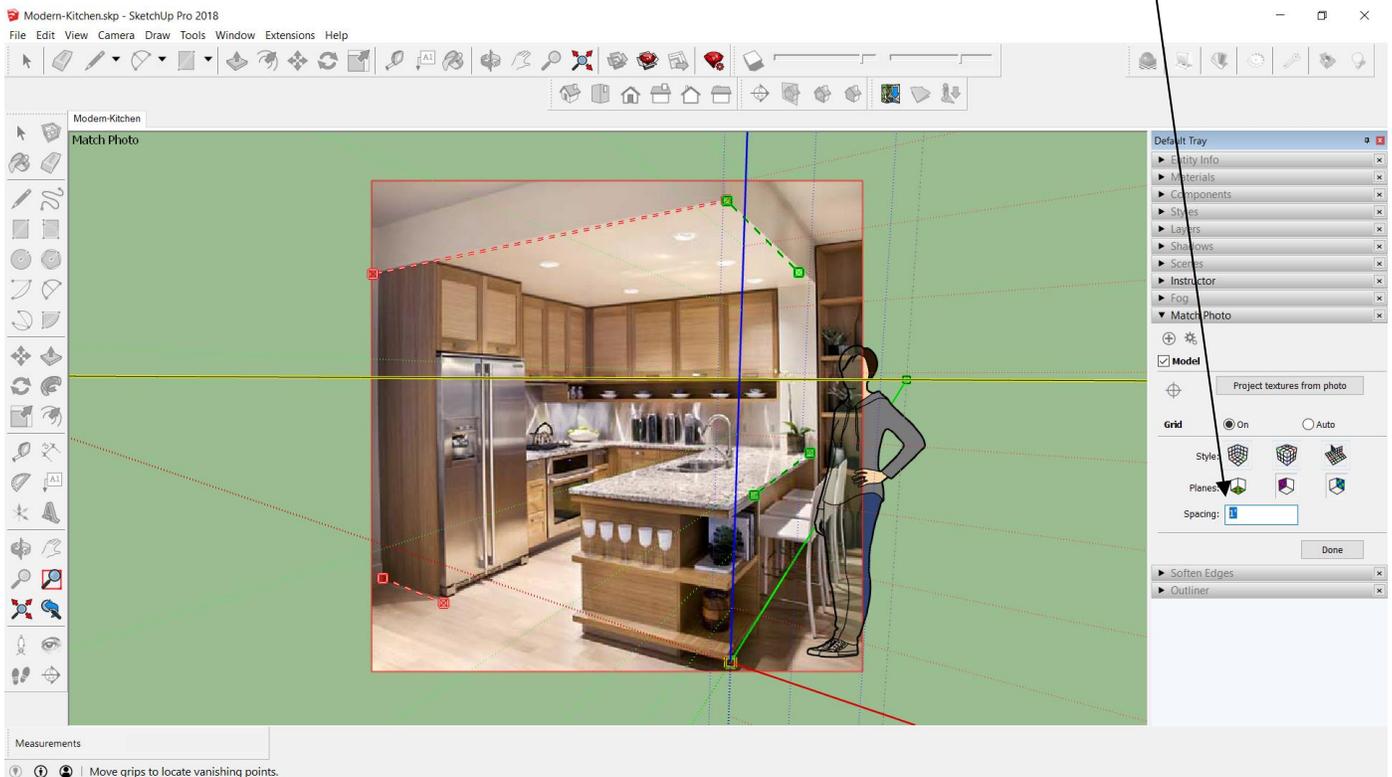
27. You now open SketchUp in a new window and “**Import**” the image file called “**White Barn.jpg**” and save it to your desktop and try and draw it using the same processes. Good Skill (not luck)! Try to create all the overhangs and gables also.



28. The above process can be used to create an “**Interior**” model in the same manner. Import the “**Modern-Kitchen.jpg**” into “**Match Photo**”.



29. Adjust the settings to match the photo as before. I changed the “**grid**” spacing to be **1**’ instead of **5**’ so I can see more grids. This helps me to adjust “**Stacy**” to match the photo better.



30. Always “**Save**” often and try and draw your first lines starting from the **0,0,0 (Origin Point)**, and to try and stay on a **red**, **green**, or **blue** axes to draw your lines. You cannot do this each time, but when you can, do so, as it helps to align the shapes.
31. Occasionally, “**Orbit**” to look at your progression, and see if any lines you drew are not on axes.
32. Remember you may re-open the settings at anytime to see if it can help you to draw some lines, try not to adjust the settings too much at one time.

Below is what you should learn and help you to model in “Match Photo”:

- a) Learn about “**Match Photo**” in SketchUp and how to best set it up.
- b) Learn how to “**project an image onto a model face**”.
- c) Learn how to modify an image and place it correctly onto a face.
- d) Learn how to use images in “**Match Photo**” to make a **3D** model from a **2D** photo.
- e) You can practice on these photos also: (“**White Barn**” and the “**Modern-Kitchen.jpg**”).
- f) Enjoy your time in “**Match Photo**”.