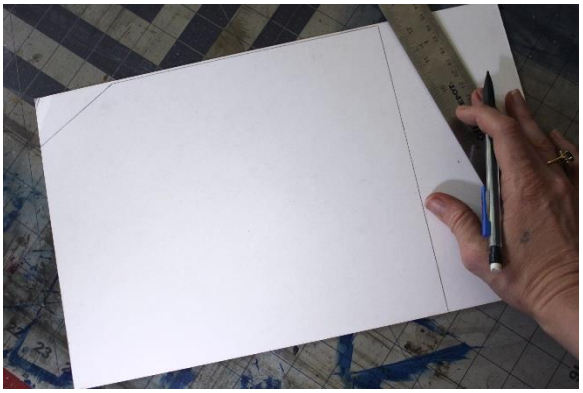
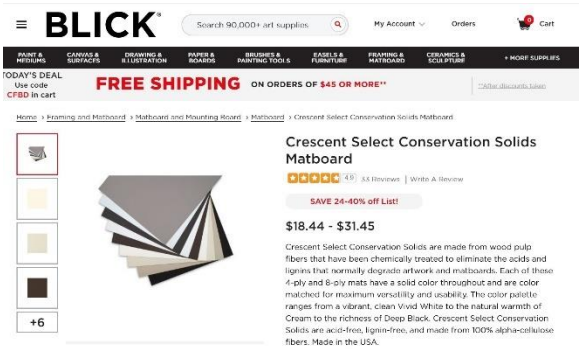
Chapter 2: Making the Model

Once you understand how to approach scale in 2 dimensions, transferring that process to 3 dimensions will come naturally. You will follow the same process you did on paper, but this time you will cut out the shapes from a preselected material and will then assemble them into a 3 dimensional object.

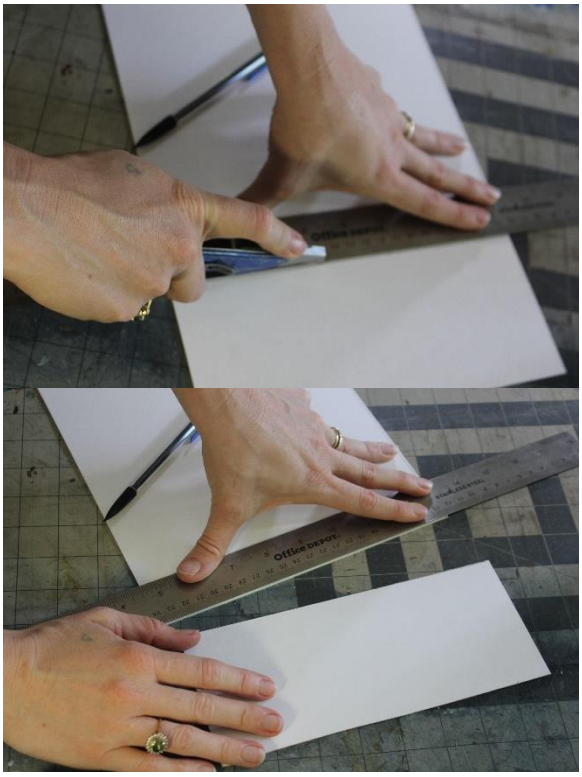
The essential materials we will be using:
Utility knife (also called a box cutter)
Metal ruler
Pencil
Cutting board
Thin, paintable material (i.e. watercolor paper or mat board)
Thicker material (i.e. foam core or cardboard)
Tacky glue
Tape and/or pins



We are going to look at the wall in 2 parts. The 1st part is the interior surface of the wall, which is what we measured, and what we will call the facing. We will draw this to scale on a thin, paintable surface. This is the part of the wall that we would see if we were standing in the room. My room has one wall smaller than the others, so the adjacent wall has a sloping edge on one corner.



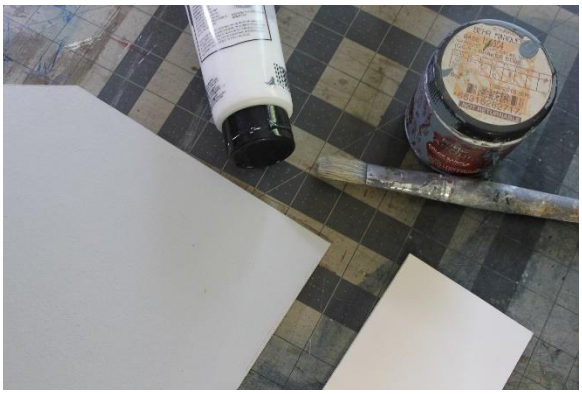
I am drawing the facing of my wall on mat board, which is a compressed fiber board often used for mounting photographs or drawings. If you find that you enjoy model making, I recommend that you try working with this material, as it is very versatile and easy to find. It can be pricey from art stores like Dick Blick but you can often find it cheaper at Michaels and even WalMart.



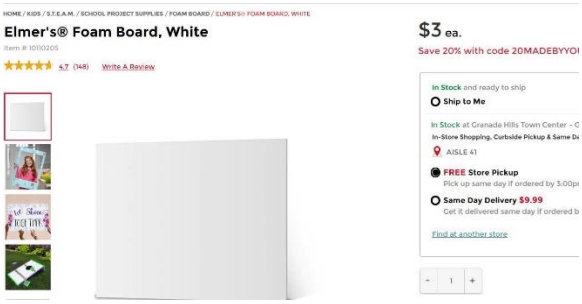
Next we will cut out the shape we just drew. If you are using poster board or watercolor paper you may use scissors, but matte board will require a knife. For safety, always stand when cutting and always use a metal ruler with corkboard on the underside. Use a utility knife rather than a delicate knife, as it is heavier and easier to grip, less likely to slip. Hold the ruler with your non-

dominant hand, checking that your fingers are not in the way. Press down gently with the knife. Carefully score the matte board by running the knife along the ruler. Score as many times as necessary until the piece is cut out.

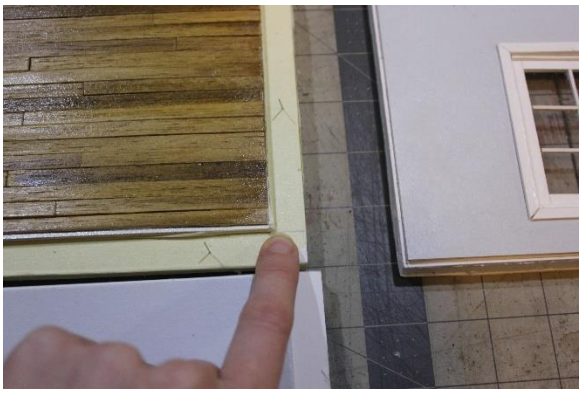
Repeat this process for the remaining 2 walls and the floor.



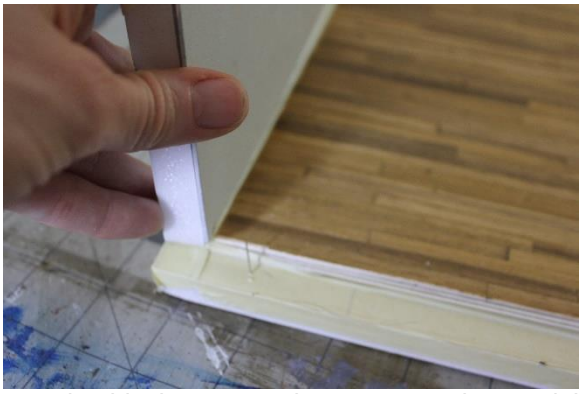
Now that we have our pieces cut out, we have the option of painting them or leaving them as is. I painted this wall to match the actual wall of the room it was based on. I also painted a realistic wooden floor to match. You may use any medium you wish that is appropriate for the material you cut out on your own models. We won't go into specific methods for adding details such as molding or windows or wall texture, but I urge you to experiment with materials and methods!



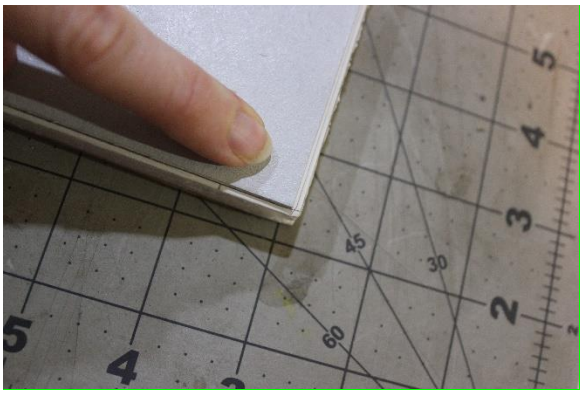
Now we need to provide some structure for the wall. Select a sturdy material that is easy to cut but does not easily bend. I am using foam core here, but cardboard is an adequate substitution for this tutorial. If you would like to buy foam core it is commonly found in the school supply section of most big box stores, but many dollar stores also have sheets for 1 dollar each.

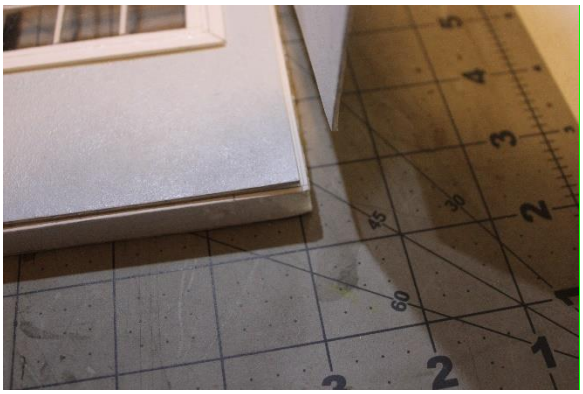


Next we are going to redraw this shape on a thicker material, but this time we are going to add a lip to some of the edges for both our walls and our floors. This is a picture of the facing material ontop of the structural material of the finished model: you can see that the footprint of the structural material is larger.

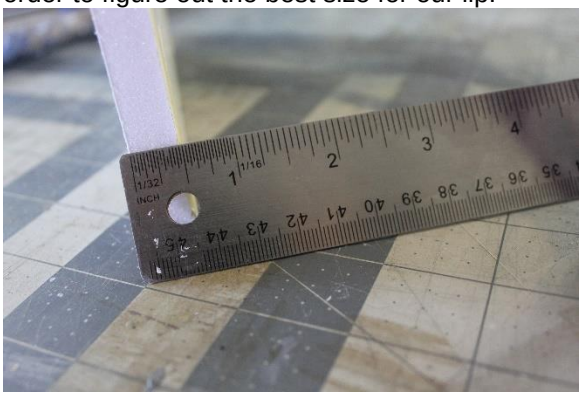


We do this because when we put the model together, we need a place to attach the different pieces to. You can see why we need a lip for structural integrity. The size of the lip will vary based on the location and the material we used.

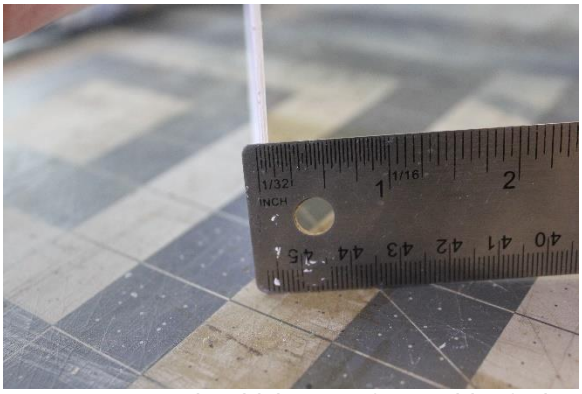




We will need to measure the thickness of both our structural material and our surface material in order to figure out the best size for our lip.



1st measure the thickness of whatever structural material you are working with. This will be the width of your thick lip. For me, the foam core is ½ inch thick.



Next, measure the thickness of your thin, facing material: this will be the width of your thin lip. My mat board is 1/8 inch thick. If you are using watercolor paper, the width of your thin lip is 0 and you may ignore references to it moving forward.

Here you can see where I have placed the lip throughout the model in relation to the facing material.

This may all feel a little complicated right now, but it will make intuitive sense to you after you construct your 1st physical model. Don't worry, for this tutorial I have broken it down for you below!

For the back wall:
On the edges that meet the 2 sidewalls, add a thick lip

For the side walls:
On the edge that meets the back wall, add a thin lip

For the floor:
Along the back wall and both of the sides add a thick lip.

Remember: if you are using poster board instead of mat board, your thin lip = 0. Only add the thick lip.

Cut all of the structural pieces out following the same method as you did for your paintable surface. Attach the facing to the structural surface using glue or tape.

Assembly

Now we are ready for assembly.

You may assemble your model using pins, tape or glue. Pins work best with foam core models, whereas tape can be used for any kind of material. The benefits of using either tape or pins (or a combination of both) is that it is easy to disassemble the model afterwards. This is convenient for both storage and shipping. Glue is cleaner but it makes the model permanent.

To assemble, simply hold 2 of the pieces together and push the pins together. Use masking tape along the seams. The back of the model looks quite messy: that is ok for our purposes! Our model is only meant to be looked at from the inside. You can always add a facing surface to the outside if its appearance is important to you.

Suggested Technical Exercise

Materials needed:
Utility knife
Metal ruler
Pencil
Cutting board
Thin, paintable material
Thicker, structural material
Tacky glue
Tape and/or pins

Create a model of your own using the drafting of the room that you completed in the previous chapter. Be as detailed as is useful to you.