**Activity 6.7.4: Creating Individual Models from Start to Finish**

Now it is time to create your own piece of furniture. You can do this in several different ways. You can make your model of card stock by using a protractor and ruler or GeoGebra or Geometer’s Sketchpad or you could do your modeling in a program called 1-2-3 Design. You could stop there or you could export the model from 1-2-3 Design and print it out on a 3-d printer.

**Read through all the instructions below, before you start!**

1. You need a plan.
   1. What piece of furniture will you plan to design? You would surely need a chair or a table, bed or something similar.
   2. Make a simple sketch of your piece of furniture here:
   3. You need to come up with some ideas for dimensions. Describe how you figure out the dimensions here, then add them to your diagram above.
2. Describe your plan for construction.
   1. If you are using card stock and protractor and ruler attach a copy of your hard copy plan to this packet. Mark it 2a.
   2. If you are using card stock and GeoGebra attach a hard copy of your construction to this packet. Mark it 2b.
   3. If you are using card stock and Geometer’s Sketch Pad attach a hard copy of your construction to this packet. Mark it 2c.
   4. If you are using 1-2-3 Design or other CAD (Computer Aided Design) tool attach a 2-d illustration of your plan to this packet. Mark it 2d.
3. Carry out the construction.   
   1. If you did 2 a, b, or c print out a copy of your construction information, cut it out and assemble it with glue. Take a picture of it and attach the picture to this packet. Label it 3a.
   2. If you did 2 d you should export your CAD construction to the software that controls your 3-d printer. See your teacher for advice. When the object is printed take a picture of it and attach the picture to this packet. Label it 3b. You may have to do some conversions from American traditional measurements in feet and inches to metric measurements depending upon your 3-d printer software.
4. Reality Check:  
   1. Find a real world example of your piece of furniture and measure it in inches. Sketch it in the space below, showing the measurements on your sketch.
   2. Divide your measurements in 4a by 12. Remember that the scale in the doll house is 1/12 or one inch in the doll house is one foot in real life.
   3. How do your measurements compare with the scaled measurements in the real life object?
5. How does your model measure up? Does it look realistic? Are the parts proportional? Is it in appropriate proportion for the dollhouse people?
6. If you were doing this again, what would you do differently?