

Paper Patterns

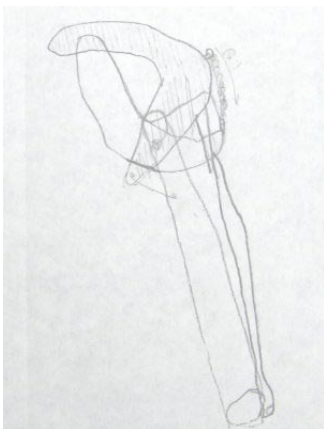
From Tom Bean NTBEST

By Diane Getrum

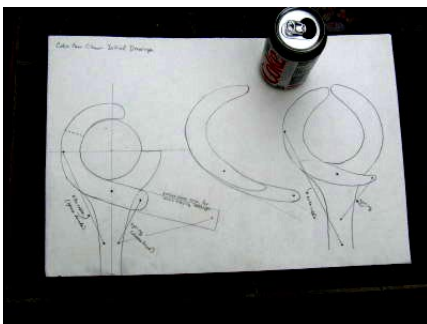
The secret of building a winning machine is to build the parts you can use, not use the parts you can build! In reality we always end up doing some of both, but in the best of worlds we would have many of the design flaws worked out using paper and cardboard before we cut into the wood. The following pictures illustrate the technique.



Always start with the objective. You must pick up this can.



Encourage students to put their ideas on paper. This is a pretty good student drawing. Many students are reluctant artists and get easily frustrated because their pictures don't match their ideas. For them the steps below may help bridge the "I'm no Artist" barrier.



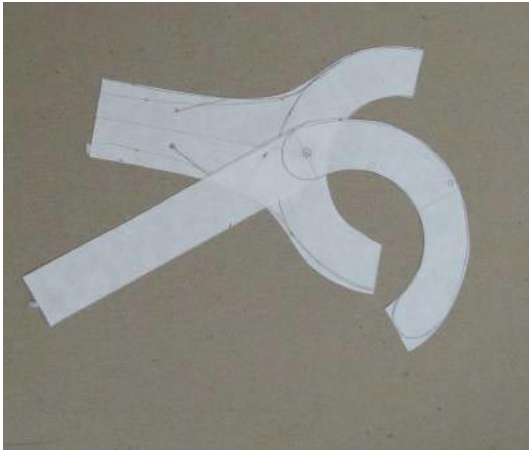
Trace the actual can on to the paper. Now add your design to the tracing. This style of drawing is more concrete plus your plans end up life size. Flesh out the ideas with guiding questions like, "What will hold this side of the can?", "Will it be thick or thin?" "Does this part move?" Teams of students can work together. Encourage piggy back ideas and what if questions. It is easy to try several options on paper.



Select the ideas you think will work best and cut them out in card stock or trace the patterns onto cardboard and use the band saw to cut it out.



Assemble the pieces like you would the real thing and move them around. Do they work the way you want? You can quickly see that this claw opens easily but there is no way to close it.



The long hook on this claw seemed like a good idea but it will never grab a can. However, that long lever arm does close the hand.



Once you have the design working on paper those same pieces of paper become your patterns. The time you invested in drawing pays back with reduced time in the shop and a better use of materials.

Wood and plastic do work differently than paper. Expect to refine your prototype. At least now you have plastic left to fix the flaws!



Let the games begin!