How to manufacture a puzzle

Here are the directions you are going to need to create your very own puzzle in technology education.

Please remember that there are 5 steps involved in manufacturing a project from wood. Even though the projects may vary as far as design and purpose, the process will be the same.

The steps you need to manufacture a woodworking project are: Layout, Shaping, Smoothing, Assembly and Finishing.

So let’s build a puzzle. **The 1st step** you need to do is the layout process. This is the most important of the 5 steps. This is where you create the design for your clock. From your design you develop a pattern of the exact size of your puzzle. This can be done freehand, use the internet, or use one of the puzzle patterns that I have. Now trace the pattern onto your wood.

**The 2nd step** is the shaping process. This is where you cut your wood up into individual project pieces. To accomplish this you will use the radial-arm saw, jigsaw and or the bandsaw. Remember to cut roughly a 1/8” away from your layout line. At this point you only are cutting out the outline of your puzzle. You will be cutting the pieces out once the outside of the puzzle if smoothed.

Once your pieces are cut, **the 3rd step** is smoothing. Remember this process involves two steps. Filing and sanding. The 1st thing you need to do is file your individual project pieces. The files you could be using are the flat, ½ round, round and square. The purpose of filing is to make all the cut edges even. After all your pieces are filed – your next step is to sand all you pieces. Please remember that you must sand with the grain, never across it. While you are sanding you could use the finish sander, combo-sander, spindle sander or hand sand. Once you finished this step on the outside of the puzzle you will need to repeat step two for cutting out the puzzle pieces. Do not file or sand the puzzle pieces because they will no longer fit together.

**The 4th step** is assembly. This is where the individual project piece are put together the form your actual project. It is important here to decide what your project will be used for. You could use nails, screws or glue. If your project must hold a lot of weight, use screws. If your project is for decoration, then nails are fine. Glue is a great back-up to keep your project assembly long lasting. To assemble, you might need nails, nail set and wood putty. No assembly is required in manufacturing a puzzle.

**The 5th** and last step is finishing. This process can involve many different types of wood finish. The 1st is to paint your project. I have some colors – but not the entire rainbow of colors. You will need a paint brush to apply and scrap wood to protect your project. Remember not to paint the bottom of your project. You need to put it down to dry. The next is to stain your project. The color I have is walnut. Stain is applied with a rag and once again you need scrap wood to protect your project. The last is lacquer. This is a clear – protective coating. Lacquer is applied with a brush and is the last finish you can apply to your project. Once wood is lacquered it is sealed. It is applied with a brush and do not forget the scrap wood. Try not to apply too much finish to the sides of the puzzle pieces because they may no longer fit together if too much is applied.