Lesson Plan

Name: Dave Sheppard Date: October 10, 2014

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| Block |  | | Class/  Grade | Woodwork 9 | |
| Purpose | Students will learn how to use a band saw in a safe manner. Students will learn the how to make irregular cut with the band saw so they can make rounded type cuts for their projects. | | | | |
| PLO | * Identify and describe the set-up and use of the following stationary equipment cutting equipment (Band Saw) * Perform rip and cross-cut operations cut irregular shapes. * machine material to prescribed dimensions and profile edges using shaping equipment | | Literacy | * Students will learn the concept of using a band saw safely. * Interrupt the information for practical use. * Communicate information practically and verbally. * Students will gain new words to grow their vocabulary in shop. | |
| TSWBAT | Students will be able to identify functions, safety, and correct procedure of the band saw. | | Literacy | * Constructive thinking on how to make a circular piece of wood * Communicate information by writing, talking, or practical. * Students will be able to safely cut irregular shapes on the band saw. * Students will learn about the proper cutting methods in making irregular shapes | |
| Stages | | Content | | | Time |
| Introduction | | Hook: What are some ways to cut out a circle made out of wood?   * For 2 minute with the partner next to you, find out different ways to cut out a circle. * There are five options: Band saw, skill saw, CNC machine, hand tools, and scroll saw.  1. We would not use a hand tools because this would take too long and we want to be able to get to the sanding stage much quicker but one could do it with a hand saw, chisel, and 2. A Scroll saw is a good option for this but the material that we are using is to thick and scroll saws are more for thin detail work and also cutting out the inside of a shape. Ex. Cutting out the letter “D” one would use the scroll saw to cut out the inside of the letter after make a hole with a drill press. 3. A skill saw is for larger objects and is a hand held device that would take a lot of jigging and clamping to set up. There is also a bigger risk factor to this way because of it being a hand held device which could lead to kick backs. 4. CNC machine is an accurate way to get a perfect circle but takes a lot of time to make the computer codes and setting up the machine. CNC machine also don’t work well with making deep cuts in big stock and departure cuts (cutting something in to two). 5. A Band saw is the perfect balance of detail, and cutting power to be able to cut irregular shapes and the circle that is necessary for ones project. | | | 13 min |
| Activation of Prior Knowledge | | * Who has had a parent, guardian, or grandparent bought an irregular shaped object and wonder how it was made that way? * If you were to operate this band saw, explain to me how you would operate this band saw? | | | 7 min |
| Motivation | | * Learning this skill will let students be able to make irregular shapes out of wood so they can add a 3D effect to their project. | | | 5 min |
| Direct Instructions | | Demonstrate how to properly use the Band saw with the following steps:   1. Wear proper personal protection equipment. Safety glasses are mandatory but one can also use a face shield for extra protection. Wear hearing protection and dust mask are recommended but not required. Do not wear gloves could get caught in machine. 2. Make sure to be dressed for a shop environment No loose fitting clothes or loose jewelry. Long hair 2 must be covered or tied back. 3. Both wheel guard plates must be on and closed before turning on the machine and that the band saw blade is on the wheel. Make sure all guards and blade guides are in place and properly adjusted. 4. Adjust the guard so that it is approximately ¼ inch above the work. To do this place your pinky finger on your work and settle the guard on your top of your pinky finger and lock tightly. 5. Make sure not to use any stock bigger than 12” by 12” by 4” without instruction by the teacher. 6. Stock must be held flat on the table, or otherwise jigged securely. If your work is not flat one may also use the jointer to make it flat if the necessary safety work and test has been done on the jointer. One could also use a hand planner to flatten surface. 7. Maintain a two-inch margin of safety. Keep your hands on either side of the blade, not in line with the blade. Always be adjusting your hands to make sure they are not to be in line with the blade. The band saw is one only machines that one can let go of their work and not have a kick back. 8. Use a push stick to remove scraps from around the blade or turn off machine and wait for a complete stop to clear scraps. 9. Be aware that the blade can bind when cutting a curve of too small a radius. When your cutting a curve ALWAYS make safety relief cuts before cutting a tight curve so they break up in smaller pieces 10. Plan your cuts to avoid backing out of a long or complicated cut. If backing out can­ not be avoided, move the material slowly and in line with the blade to avoid pulling the blade away from the upper wheel assembly. 11. It may be necessary to turn off the power to the saw, and back out the work piece after the blade has stopped moving. 12. If a blade breaks, turn off the machine and move away until all motion stops. Then come get the teacher to disarm the blade and fix the problem. 13. Just like any power tool and equipment do not leave any saw running unattended. | | | 30 min |
| Guided Practice | | * The students will read over the safety sheet and will write a safety test to ensure their knowledge. * Students will have to write a fill in the blank safety test. Attached to back of lesson plan with answer key. * Correct safety test and hand back to a random student to mark and go over each question and correct answer. Student will have to get 80% to pass the test otherwise they will have to rewrite the test the following class until 80% is obtained. | | | 20 min |
| Independent Practice | | * During the semester students will be cutting out an irregular shape for their project and will have to cut out a circle for their bowel project which will be made on the lathe. | | | Through out the semester |
| Assessment | | * Students will have to write a fill in the blank safety test. Attached to back with answer key. * Students cut out an irregular shape on the band saw in the semester. * Students will be able to cut a circle for their bowel project. | | | Included in Guided practice and Through out the semester |
| Closure | | * Correct safety test and hand back to a random student to mark and go over each question and correct answer. Student will have to get 80% to pass the test otherwise they will have to rewrite the test the following class until 80% is obtained. * Ensure students understand the concepts and information they have been taught in today’s lesson by letting them fill out an exit slip so they can clear up any questions that them might have about the topic and see what they learned. | | | 5 min |
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Notes: Band Saw safety sheet: <http://www.mica.edu/Documents/WoodShop/BandSaw.pdf>