POWER TOOLS IN THIS CLASSROOM

SPECIAL NOTE: MANY OF THESE TOOLS CAN BE USED FOR A WIDE VARIETY OF MATERIALS BUT REQUIRE SWITCHING BLADES, SPEEDS OR OTHER ADJUSTMENTS

DRILL PRESS

- DRILLS A HOLE PERFECTLY STRAIGHT UP AND DOWN
  - HAND DRILL IS SUSCEPTIBLE TO LARGE AMOUNTS OF HUMAN ERROR

MATERIALS: ANYTHING

MITER SAW

- GREAT & EASY TOOL FOR MAKING STRAIGHT AND MEASURED CUTS
- QUICKEST AND SAFEST WAY TO MAKE A CUT
- LIMITATION: CAN ONLY MAKE CUTS ~8” LONG

- MATERIALS: WOOD, PLASTIC, METAL (DIFFERENT BLADES)

BAND SAW

- HAS A BLADE WHICH FORMS A CIRCULAR “BAND”
- TERRIBLE FOR MAKING STRAIGHT CUTS, GREAT FOR CURVED/IRREGULAR CUTS
- LIMITATION: NOT MEANT FOR CUTTING THROUGH THICK MATERIAL

HORIZONTAL BAND SAW

- SIMILAR TOOL, EXCEPT HORIZONTAL. DOES BETTER WITH THICKER MATERIAL

TABLE SAW

- MOST DANGEROUS TOOL IN CLASSROOM (ALSO CURRENTLY OUT OF ORDER)
- MAKES STRAIGHT CUTS AT ACCURATE & PRECISE MEASUREMENTS
- GREAT FOR CUTTING LARGE PIECES OF MATERIAL (ESPECIALLY PLYWOOD)

- MATERIALS: WOOD, PLASTIC, TECHNICALLY METAL

MILL – MANUAL OR CNC

- MILL: USES A ROTARY BIT TO CUT OUT PARTS FROM A BLOCK OF MATERIAL
- CNC (COMPUTER NUMERICAL CONTROL): MEANS A THE MILL CAN BE CONTROLLED BY A COMPUTER AND CREATE A COMPUTER DESIGNED PART

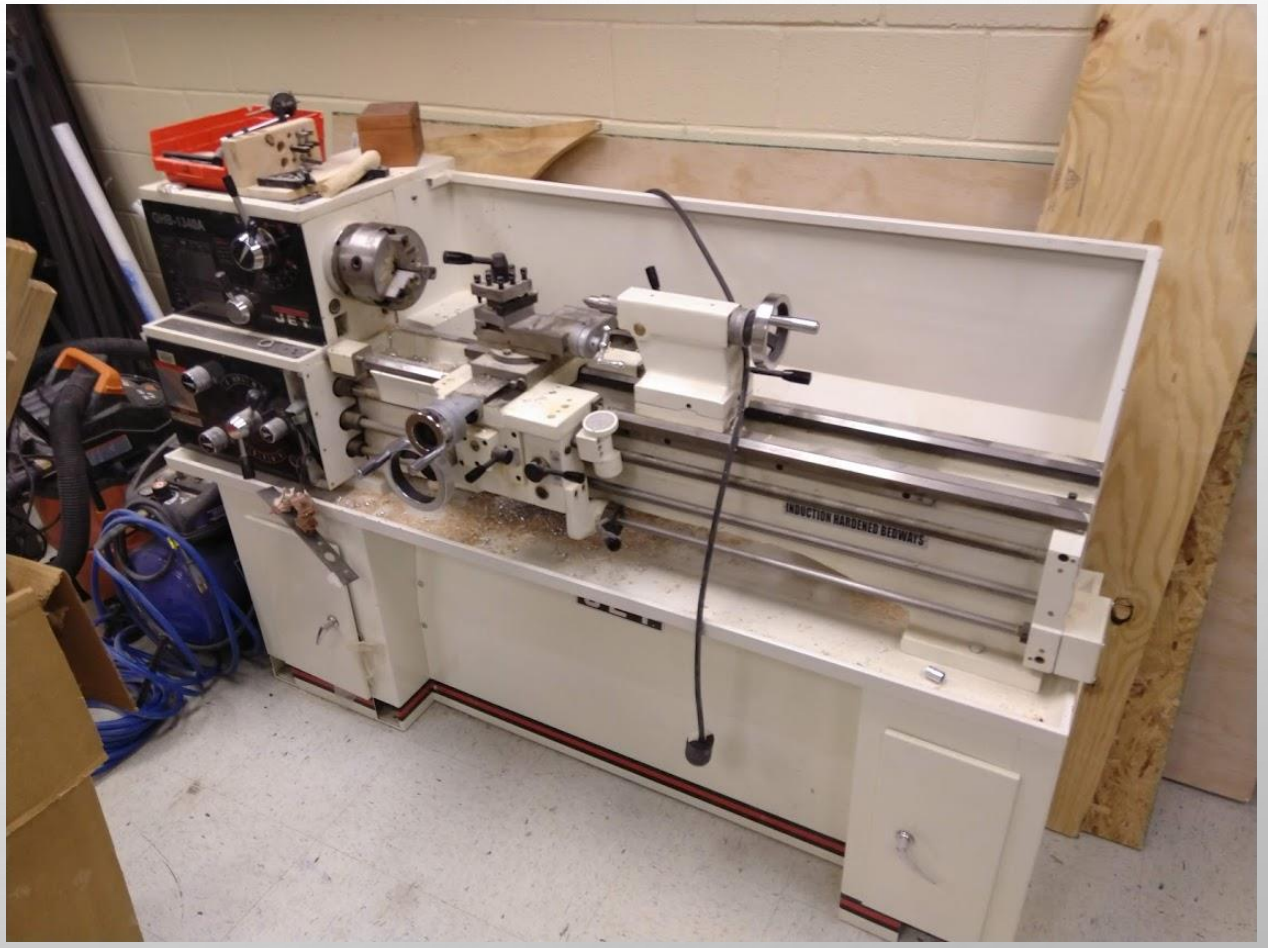
- MATERIALS: JUST ABOUT ANYTHING

QUESTION: WHAT'S THE DIFFERENCE BETWEEN A DRILL PRESS AND A MILL?

ANSWER: THE KEY DIFFERENCE IS THE CHUCK. THE MILL PROVIDES LATERAL SUPPORT FOR THE END BIT.

LATHE

- IMAGINE A DRILL HELD SIDEWAYS, BUT NICER
- ROTATES A MATERIAL WHILE A TOOL REMAINS STATIONARY
- USED FOR CUTTING, SANDING, CREATING DESIGNS, AND SHAPING MATERIAL



- MATERIAL USE: WOOD, METAL, PLASTIC

FLUX CORED ARC WELDING

- ARC WELDING – WELDING WHICH PRODUCES HEAT BY CREATING AN ELECTRIC ARC
- FLUX-CORE – THE TYPE OF WIRE FEED USED IN OUR WELDER

Materials: Metal

BENCH GRINDER

BELT SANDER

- GREAT FOR GRINDING/SANDING/EATIN
  AWAY EXCESS MATERIAL

- SIMILAR APPLICATIONS: FOR GRINDING AND BUFFING METAL

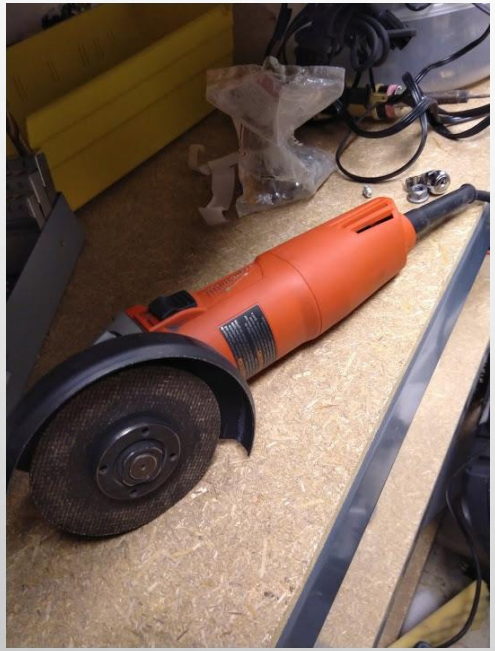
Belt Sander	vs.	Hand Sander
More “aggressive” (takes off more material)		More range in roughness/smoothness of sand papers
Better at eating away excess material		Better at smoothing/finishing material

SHOP VACUUM

- WE HAVE 2! THEY'RE LIKE A REGULAR VACUUM BUT MORE SO

HAND POWER TOOLS

Angle Grinder

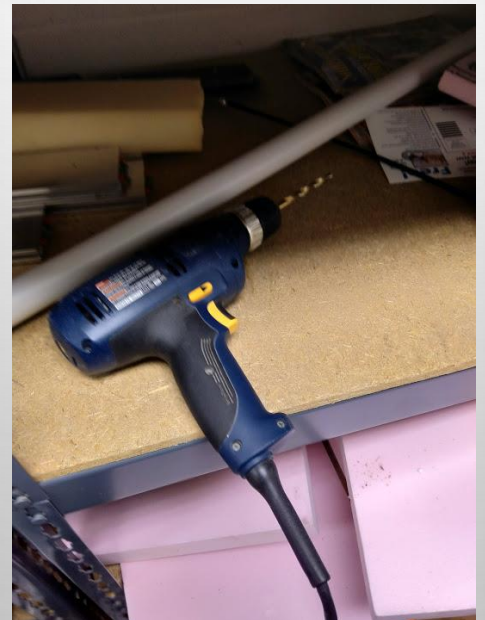


Driver

Drill

Jigsaw

Drill



Sander

Circular Saw

CHALLENGES!

CHALLENGE #1: CUTTING A PIECE OF WOOD WITH PRECISION

1. DETERMINE DESIRED CUT LENGTH
2. MEASURE AND MARK
3. MEASURE AGAIN
4. CLAMP/SUPPORT MATERIAL
5. CUT
6. RE-MEASURE
7. CLEAN UP WORKSPACE

CHALLENGE #2: BINDING TWO PIECES OF WOOD TOGETHER

1. DETERMINE HOW YOU WANT PIECES JOINED
2. DECIDE ON SCREW AND PRE-DRILL SIZE
3. CLAM/BIND BLOCKS
4. MEASURE AND MARK SCREW PLACEMENT
5. DRILL PILOT HOLE
6. BONUS: SINK THE SCREW HEAD WITH A FORSTNER BIT
7. SCREW THE WOOD TOGETHER WITH DRIVER
8. CHECK YOUR WORK
9. CLEAN YOUR WORK

CHALLENGE #3: CREATE YOUR VERY OWN WOOD BLOCK FRIEND WITH THE SKILLS YOU HAVE LEARNED AND THE HAND TOOLS