**Woodworking II upgrade**

* General shop safety: safety glasses at all times, never wear gloves/loose clothing/jewelry and tie hair back if necessary, ear protection if warranted
* Keep hands clear from moving blades, use push sticks, push pads, or hold downs
* Always familiarize oneself with machine, encourage people to make practice cuts on excess/scrap material, liberal use of test pieces
* Never start machines with blades in contact with work pieces

**Milling lumber foursquare:**

Talk about milling lumber foursquare, basic vocabulary and terminology: S2S, S4S, 1” vs 4/4, etc.

* In general, to square lumber: flatten face, plane parallel side, joint edge, table saw opposite side parallel (no jointer/banana in, banana out theory)
* Use hand plane to demonstrate planing/jointing basics
* Hand plane demonstration to segue into jointer/planer operation

**Jointer/Planer:**

* Safety, demonstrate changing machine mode and adjustments, use of fences, guards and push blocks
* No material shorter than 12”, narrower than 3/4” or less than ¼”
* Solid wood only, no plywood, composite, used lumber or pallet wood
* Examine wood carefully for grain orientation and defects: bows, twists, cups, etc. Plan accordingly
* Use test pieces
* Flatten wide side, (1st), joint an edge (2nd)
* Plane opposite wide side (3rd) then rip down (4th) side on table saw, joint again if necessary
* Pay attention to grain orientation, cut down hill & pet the cat to avoid tear-out and kickback; lessen depth of cut/feed rate if difficult grain
* Rough passes, approx. 1/16” at a time, half that for finishing
* In general, wider boards, and hard woods, take lighter cuts, avoid knots
* Keep hands a 3” radius away from cutter head at all times
* Never apply pressure to stock directly over cutter head when jointing
* Do not force material in or out of planer, let automatic feed do the work, support long material (>24”)
* With multiple boards, butt ends together to reduce snipe
* Don’t stand in direct line in front or back of jointer/planer

**Routers:**

Shaping edges, profiles, rabbets, making dados and pocket; demonstrate use of both stationary base, plunge router, and router table. Setting cutter heights and cutter mechanics

* Unplug router when making adjustments, setting heights
* Want as much shank in collet as possible, drop all the way in and then pull out slightly, tighten
* Keep base flat on material, do not operate one-handed
* Clamp or secure material being cut, keep cord out of path of cutter
* Avoid climb cutting, show blade rotation and proper feeding of clockwise on interior edges, counter-clockwise on exterior
* Make multiple cuts if hogging off lots of material
* Larger bits, lower rpms, smaller bits higher rpms
* Mention bits with bearings for trim cuts and templates
* Demonstrate router table fences, hold downs and use of push sticks

**Table Saw:**

* Set up and show a dado blade, and go through safety factors involved: use of push blocks/push sticks and emphasize lack of lack of blade guard
* Show uses: dados, rabbets and tenons

**Biscuit Cutter:**

* Show adjustments, alignments and fence operation
* Demonstrate safe and proper use of butter for biscuit joints
* Show different sized biscuits and basic layout guidelines

**Pocket Screws:**

* Demonstrate how to use pocket screws for face frames and other

Review of basic joinery, mechanical and physical: fasteners, glue, dowels, biscuits, pocket screws and physical joints (ie. mortise and tenon)