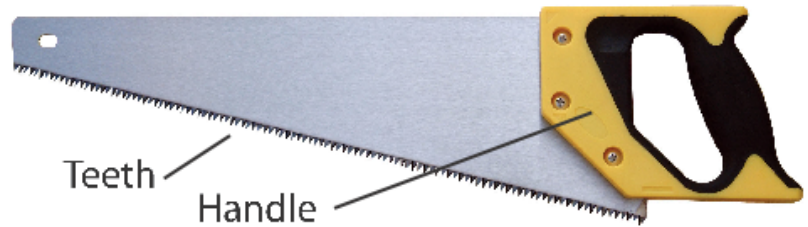


## Hand Saws (Regular, Pull Saw, Jab Saw, Hack Saw, Coping Saw)

v3, Updated April 2021

### Identify:

Handle, Teeth (during intro: invite to gently touch teeth to see how sharp they are)



### Accompanying Tools:

Clamps (usually at least 2) or vise,  
Carpenter's Square,  
Miter Box or miter block (optional, but helpful)

### Safety:

- Requires room-level adult supervision after students are fully trained
- Safety goggles
- Clamp securely to a heavy object, in a vise or on a sawhorse or low stable surface
- Blood bubble is several feet around the cutting space. After cut has a groove, it's safe enough to place a hand closer on the material, preferably on the opposite side of a clamp
- Use proper blade for material - i.e. hack saws for metal only, smaller saws for more precise cuts, coping saw for curves in thin material

### Operation:

- Body position is vital. Shoulder is above or behind the cut.
- Measure, then mark material with a carpenter's square.
- Material to be cut is firmly secured with clamps or in a vise.
- Initially draw backwards several times along the mark to start a groove. Pulling toward yourself gives you more control.
- Saw from around 1" down the saw blade from the handle to 1" in from the tip. Rarely will the tip end of the saw's teeth engage the material. The sweet spot on the blade will become apparent.
- Use one or two hands to pull back and forth with your arm acting like a piston. If using only one hand, keep your loose hand braced on the opposite side of a clamp.
- If the tool is binding (getting stuck), use less pressure. Relax the hand on the grip.
- Constant tool binding can be due to arm wagging or pressing too hard. Use smooth, light strokes. Readjust your stance and arm position. Let the saw do the work.
- When cutting metal, clamp material in a vice with the cut close to the jaws of the vise. Flexing material can cause the blade to bind.
- When cutting tubes, short items, or unusual shapes, use a vise.
- Some tinkerers may stand too far away and cut with the handle going toward their stomach. Encourage them to stand closer and draw their elbow along the side of their body. Some people even point their index finger along the grip to reinforce the intended direction. Everything in line.

