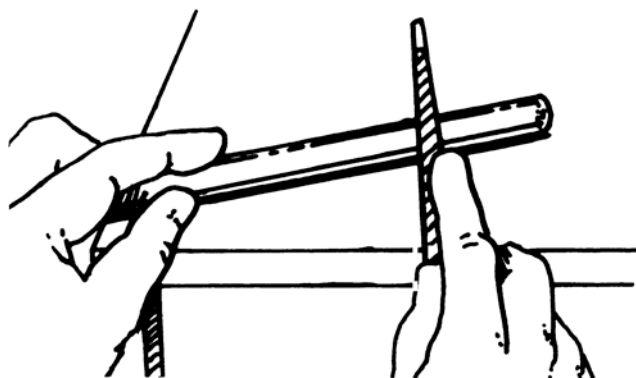


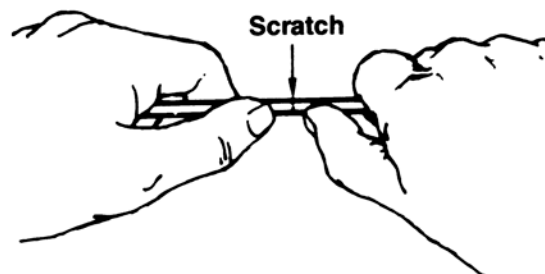
WORKING WITH GLASS TUBING LAB

When setting up apparatus for various experiments in the laboratory, it is often necessary to manipulate glass tubing. Figures I, j, and k illustrate the proper techniques to be used to cut, fire polish, and bend glass tubing. **CAUTION:** Cut glass always has sharp edges. Severe cuts can occur. Fire polishing will smooth the sharp edges. Glass cools slowly. Do not touch glass that has been heated until sufficient cooling time has passed.

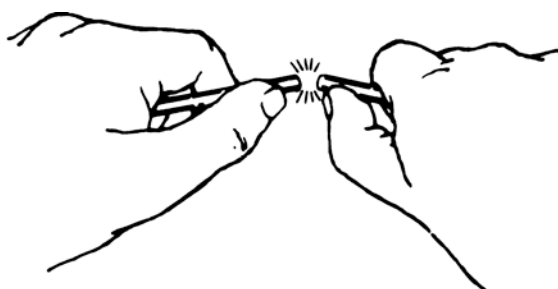
Cutting Glass Tubing



Score the tube once with a triangular file.

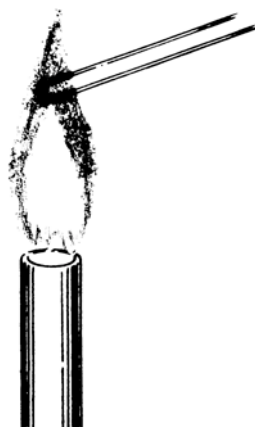


Place your thumbs opposite the scratch.



Apply pressure and snap the tubing with a quick motion.
FIGURE I. The proper method of cutting glass tubing.

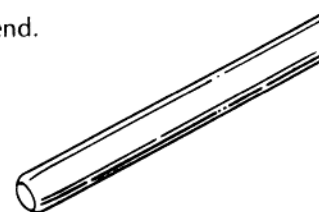
Fire Polishing Glass Tubing



Rotate the tube in a laboratory burner flame until the edges are rounded.



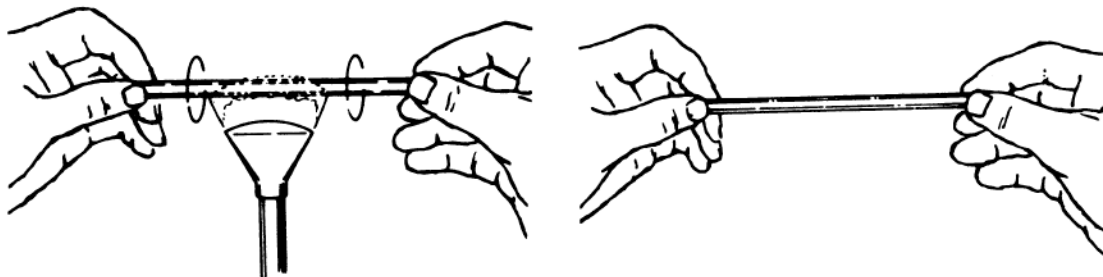
The cut end.



The fire polished end.

Figure J. Proper method of fire polishing the cut ends of glass tubing.

Bending Glass Tubing



Use a flame spreader on the laboratory burner. Roll the tube back and forth in the flame until the glass becomes soft.

Remove from the flame and hold for a few seconds until the heat is evenly distributed.

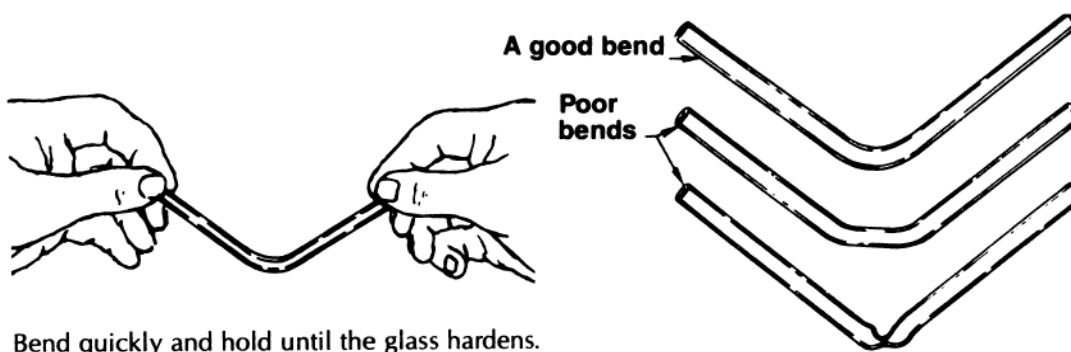


Figure K. The proper method of bending glass tubing.

Inserting Glass Tubing into a Rubber Stopper

1. Begin by lubricating the tip of the glass tubing and the rubber stopper with water, glycerol, or some other suitable substance your teacher provides.
2. Never force the tubing into the stopper. Ease it in with a gentle twisting motion. Protect your hands with a cloth or paper towels. Be sure that the ends of the tubing are directed away from the palms of your hands. **CAUTION:** *Excessive hand pressure on the tubing will cause it to break. Severe injury can occur.*
3. The end of the glass tubing should protrude from the stopper.

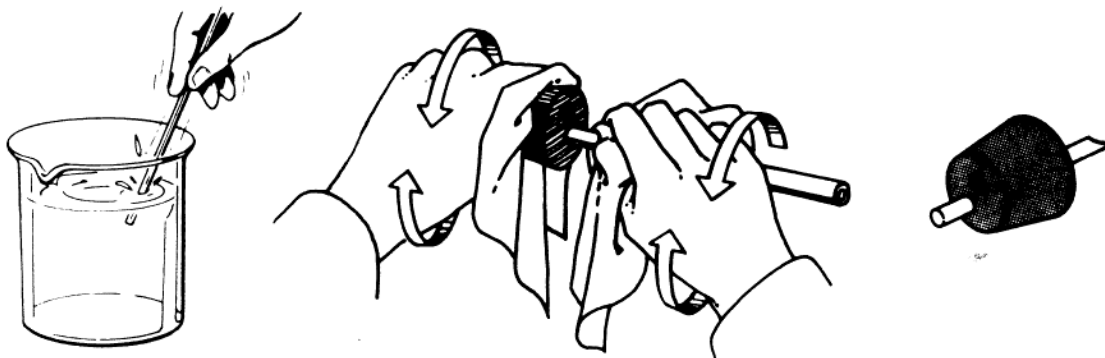


Figure L.. The proper method of inserting glass tubing into a rubber stopper.