

# Scriber

## Lathe Project

A scribe is a vital tool used in the layout of projects. This design utilizes a tool steel tip which will be hardened for long life, and a knurled grip for comfort and accuracy.



### PURPOSE

In this activity you will be take your Mad Tyte Level 1 Fabrication Skills, and explain HOW to manufacture a Scriber, and then TEST your plans by BUILDING it. Get the *point*?

There are 5 basic techniques done on a lathe. Your scriber will use all five techniques:

*Facing*

*Drilling*

*Turning*

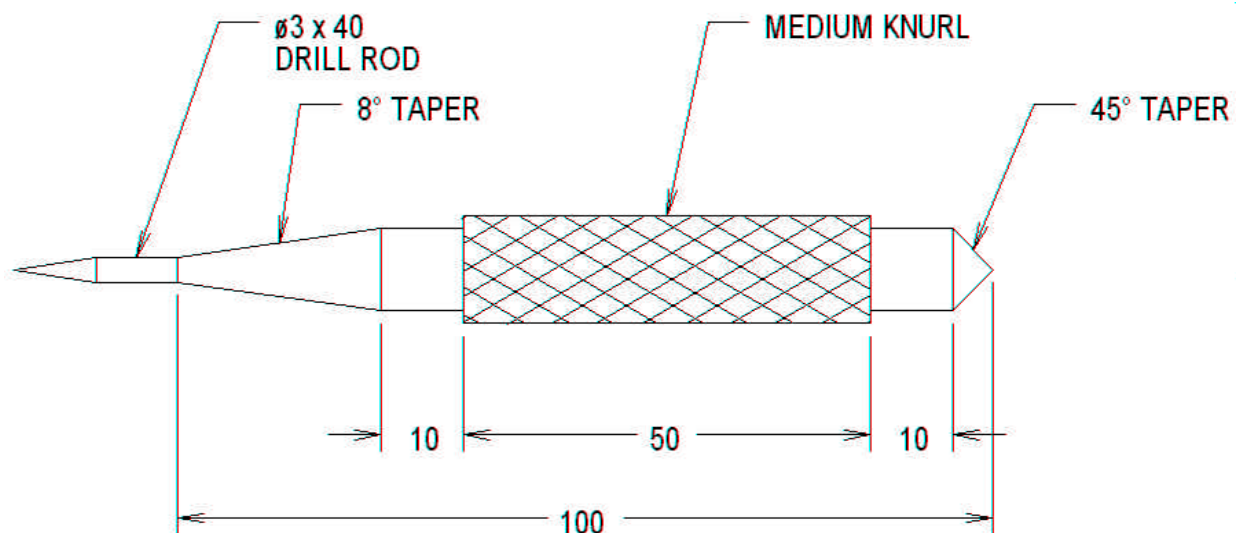
*Tapering*

*Knurling*

### PREPARATION

For this activity, you will need the following:

- |   |   |
|---|---|
| <input type="checkbox"/> 4" length of 1/2" Dia aluminum             | <input type="checkbox"/> Centering bit  |
| <input type="checkbox"/> 1/8" Dia x 1-1/2" Drill Rod                | <input type="checkbox"/> 1/8" drill bit |
| <input type="checkbox"/> Ruler                                      | <input type="checkbox"/> File           |
| <input type="checkbox"/> Scriber (hahahaha – the irony)             | <input type="checkbox"/> Sandpaper      |
| <input type="checkbox"/> Demonstrated safe use of the machine lathe |   |



## PROCEDURE

On a piece of paper, write (or draw) a series of STEP-BY-STEP instructions on HOW, EXACTLY, to fabricate this scribe.

Assume the person knows nothing about using a lathe. Sometimes I tell kids "think of the dumbest kid you know – make plans that they can follow" (If you can't think of any dumb friends, I have sad news for *you*).

You need to ask yourself a few questions:

If you taper it first, how will you hold it strongly and effectively to knurl it?

If you knurl it first, how will you hold it to taper it without damaging the knurl?

Include enough setup steps, that anyone can follow your plans. Detail is good!

## FABRICATION

Go for it! The ultimate test is if your plans actually work. Follow them! Make changes to them as you discover flaws or ambiguities in your steps.

The final step, after inserting the scribe tip, is to heat treat the tip itself.

Heat the tip with a wee torch, just until red hot, then QUICKLY swish it around in a bucket of old motor oil. If the bucket of oil catches on fire, just drop the scribe in, and cover the bucket with a lid to seal off the oxygen.

## REFLECTION

What could you have done to fabricate this more easily?

In what way would you improve the design of this scribe?

### ANNEALING

Annealing steel makes it softer.

You must heat the steel to red hot, and then cool it SLOWLY

*This relaxes the molecules, much like soaking in a hot tub.*

### HEAT TREATING

Heat treating steel makes it stronger.

You must heat up the steel to red hot, and then cool it QUICKLY

*This tenses the molecules, much like jumping out of a hot tub and rolling around in the snow.*