

## DIY NATION: MAKE YOUR OWN TOOLS FOR MEASURING KEY HOMINID FEATURES

Here are instructions on how to fashion your own caliper and custom protractor for measuring key hominid features.

### 1. First, the easy part: **long-arm calipers**

Good old x-ray calipers do the trick. One thing to watch out for: we put little felt pads where the sliding arm meets the L such that the sliding arm would have a better hold, and that through the action of the moving arm the numbers on the caliper wouldn't scrape off. Here some examples: (1) on [SHOPMEDVET](#), (2) [on eBay](#), (3) and also [on eBay](#).

### 2. Then the hard part: **custom protractors**

The protractors for measuring hominid prognathism are tricky, as you will have to make them bespoke to match each particular skull in the set: one custom protractor for each skull (as each hominid has a unique nasion-maxilla base distance).

#### A. *Materials*

What you will need:

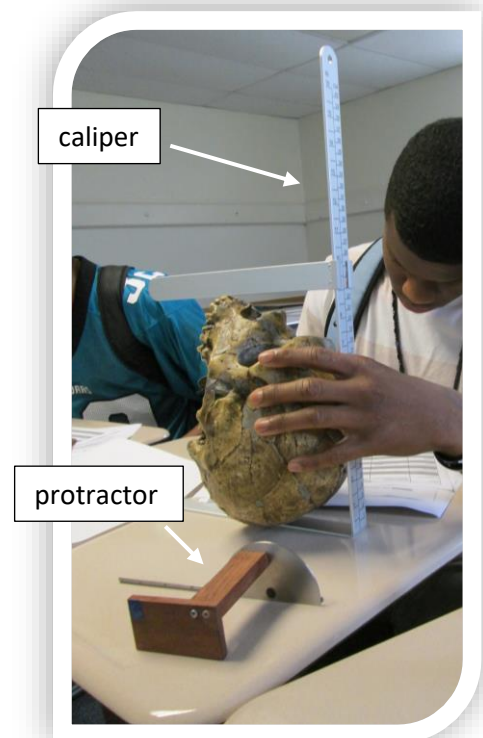
- small screws (4 per protractor)
- wood (hardwood if possible)
- a bevel angle gauge protractor such as [this one](#)
- drill or screwdriver

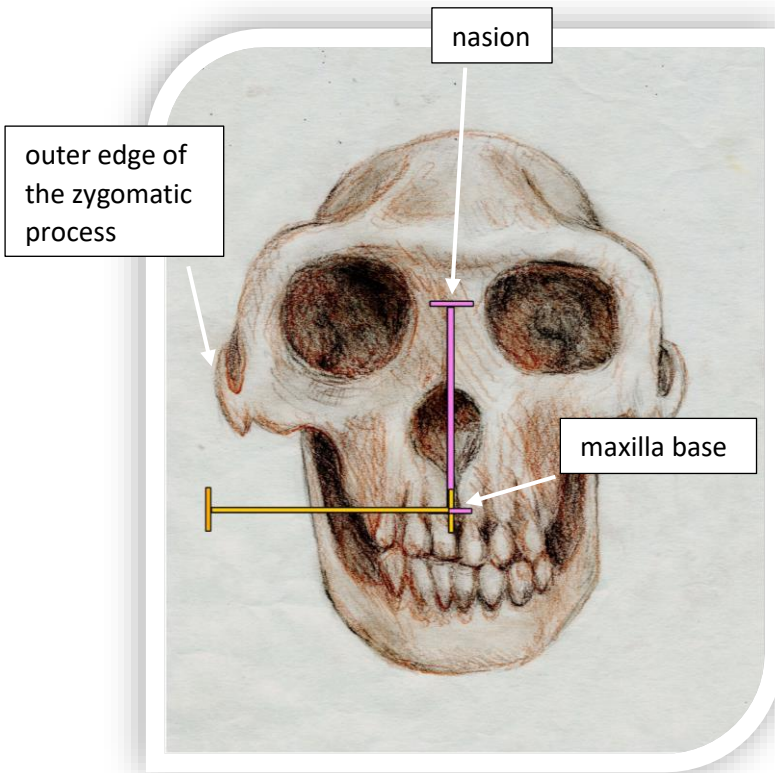
#### B. *Wood measurement*

Fashion two pieces of wood such that together they span the following two parameters:

- distance from nasion (furthest indentation between eyes) to maxilla base (point right before teeth)
- distance from maxilla base mid-point to outer edge of the zygomatic process

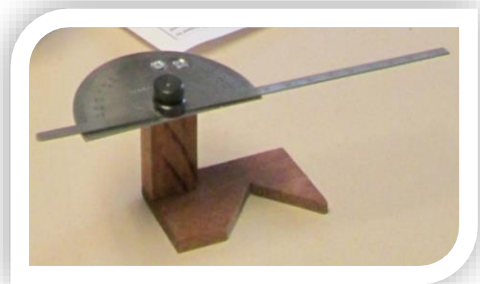
Don't forget to take into account the width of the wood before sawing.





### C. Cutting a "V"

The bottom edge of the extension block that sits on the skull's face, will, in the case of some skulls where the nose base pocks out, need to be cut such that a "V" shape is cut out around the nose.



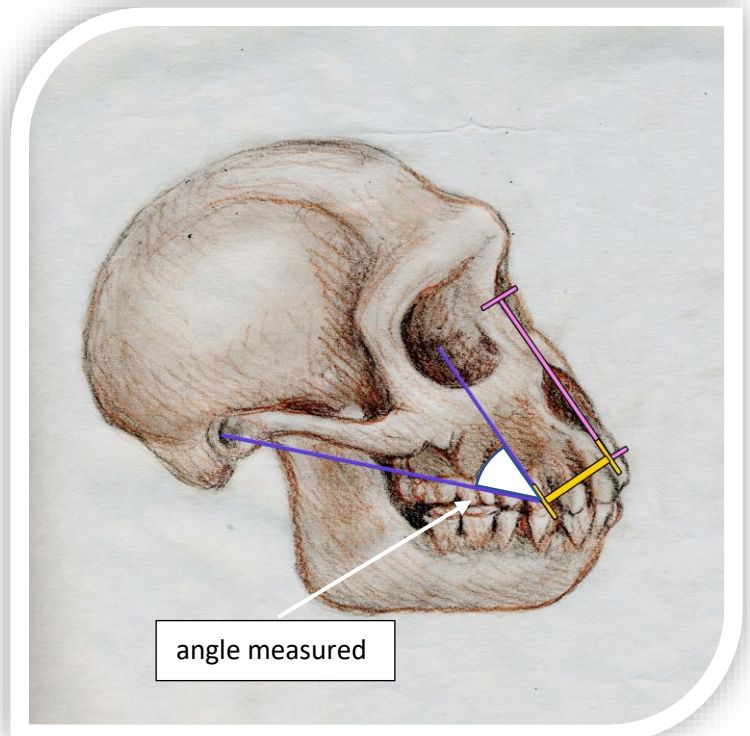
### D. Assembly

Drill and screw the wood and metal protractor together such that:

- (1) the bottom edge of the metal protractor part sits flush with the bottom edge of the extension block that sits on the skull's face;
- (2) the eye of the metal protractor aligns with the bottom edge of the extension block that sits on the skull's face.

### E. Tool use

As explained in more detail in our lab's instructor curriculum, the maxillary angle ends up being measured.



Good luck!