

Tuning bars for a xylophone (including marimbas)

I will talk about wooden bars, but the principles are the same for bars of other materials.

Making a set of marimba bars out of something soft like redwood or cedar lumber is different from making them out of something hard, like paduk. You can buy soft woods as dimensional lumber but probably not hard woods. Soft woods are cheaper and easier to work. Hard woods stand up better to abuse, sound better in the high range, and allow far more pitch adjustment than soft. You can also tune the clack of the mallet against the hardwood bar. When it is in tune with the fundamental, the clack is still there, but you no longer wish you could get rid of it. If you want the advantages of soft wood but worry that the kids will beat up a cedar marimba, you can protect the top of the bars with any hard finish.

Soft

Cut these to the right length, starting with the longest. My G₃ cedar bar is 710mm long and 20 thick (sold as a 1 x 3). My G₃ redwood 2 x 4 is 800mm long.

Cut too long, then cut off small amounts while testing the pitch. Test the pitch by holding the bar by the edges, about 2/9 of the way down from the top. Tap the middle with a mallet and read the pitch from a tuner (on mic setting). I use a super ball on a stick as a mallet, but you can use your knuckles or a piece of wood with leather over it, or whatever you've got.

When you get very close to the pitch (within a few cents), you can grind off the underside edge of each end to remove small amounts. Keep the 2 ends symmetrical.

If you cut too much you can use this piece for the next higher bar and cut a new one. If you've only cut a few too many cents off, you can scoop out some wood from the underside as with hardwood bars (below), but much less material. A bench sander works well for this.

Hard

Cut hardwood bars to the length you need, then lower the pitch by removing an arch from the underside. A bandsaw handles this job. The arch not only lowers the pitch, it improves the sound. The bars below came down in pitch as much as an octave.



If you need to know more than this, I recommend *Making Marimbas and Other Bar Percussion Instruments* by Bart Hopkin and Carl Dean.