Buy Your Copy Now!

Buy Your E-Book Now!

Make Your Own Marimbas

by Jon Madin

Illustrated instructions for making your own marimbas

- Box-resonated diatonic marimba for three players
- Pipe-resonated diatonic marimba for three players
- Bass marimba for two players
- Portable mini marimba

Beatin' Path Publications LLC BPP-MYOM

6

21

24

42

Contents

4 The Four Marimba Designs

5 Design Principals

6 Box Resonated 3 1/2 Octave Marimba for 3 Players

9 Making the Frame

18 Making the Bars

19 Making the Beaters

21 Pipe Resonated 3 1/2 Octave Marimba

24 Pipe Resonated 2 Octave Bass Marimba

31 Making the Bars

33 Making the Resonators

38 Making the Beaters

39 Overtone Tuning

42 Minimarimba

50 Other Books by Jon Madin

The Four Marimba Designs

A marimba is a xylophone with a wide range including deep notes equivalent to those of a bass xylophone.

The diatonic marimbas described here are derived from instruments that Andy Rigby, musician and instrument builder, played in Zimbabwe and Botswana. He passed on the knowledge he had gained regarding marimba construction and certain playing styles. We then began our marimba experiments by trying to recreate the Zimbabwean-style instruments.

I then tried some more extensive changes to the range of the instruments and tried box and plastic drum resonation. (Orff Schulwerk xylophones have box resonators.) These changes helped make the instruments more suitable for school and community situations where large numbers of both musicians and non-musicians want to be involved.

From the original concept I have developed the four marimba designs described in this book.

Box resonated 3 1/2 octave marimbas made and played at Bacchus Marsh Primary School

1. Box Resonated 3 1/2 Octave 3 Player Diatonic Marimba (page 6)

This marimba is especially suitable for school classroom or family use. It is a sturdy instrument with folding legs and it can be stored in the upright position. It is straightforward to build. This marimba is approximately 1920mm (6'3") in length allowing 3, 4 or even 5 people to play at the same time. Sharp and flat notes may be substituted to increase this marimba's versatility.

Pipe resonated marimba being played at Turramurra Bush Camp

2. Pipe Resonated 3 1/2 Octave 3 Player Diatonic Marimba (page 21)

This is the same in range and size as (1), but is resonated by P.V.C. pipe. The pipes are capped and need to be tuned and fitted exactly to resonate the tone bars. This makes the instrument a little more difficult to build than the above model. Some people prefer the sound of tube resonation. Having pipes also means that it is possible to obtain the distinctive African marimba timbre (the buzz) by fitting mirlitons (holes with plastic coverings) to the resonators.

3. Pipe Resonated 2 Octave 2 Player Bass Marimba (page 24)

The deepest note on this marimba is an octave below the 3-player instruments. The overall length is slightly shorter than (1) and (2), and construction is a little more challenging than (2) owing to the fitting of pipe resonators that have bends. This marimba has optional adaptors for the pipes which are necessary when using sharp and flat tone bars.

4. Box Resonated 13 Note 1 Player Minimarimba (page 42)

This compact instrument is a fully portable soprano xylophone. When not being played the bars and beaters are stored inside the instrument and secured by a well fitting lid. A handle makes it easily carried, even by a child.

Bass marimba

Minimarimbas made by students at Ocean Grove Primary School

Design Principles

In designing these instruments I have kept in mind the following important points.

- Ease of making. You don't need to be an instrument-maker to make these marimbas. Basic woodworking skills and hand tools will suffice. Tuning the bars (and resonators where applicable) is the only step where the assistance of someone a bit 'musical' may be required.
- Accessibility of materials. Most of the wood and hardware you'll need is readily available locally. Kiln dried hardwood is great for the bars so there is no need to import rainforest timbers.
- Playability. The bars are wide, which makes them hard to miss, and (apart from the minimarimba) having the instrument up on legs makes it inviting for the players to move with the music.
- Diatonicity. The tone bars are equivalent to the white notes of the piano. Sharps and flats can be made and substituted just as on the Orff Schulwerk instruments.

A note for teachers

If you are making a marimba or having one made for school use, the box resonated design is far simpler to make and is sturdier than the pipe resonated model.

A note for makers

If you change any of the dimensions of the box resonator, baffle, or ply top piece the sound of the instrument will be affected.

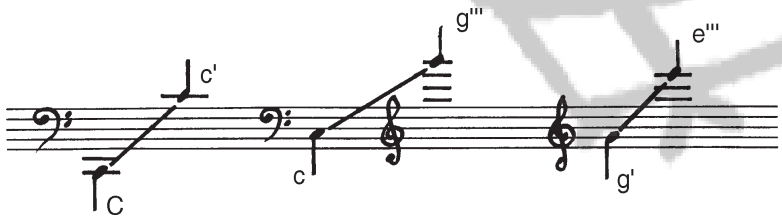
Box Resonated 3 1/2 Octave Marimba for 3 Players

3 1/2 Octave box resonated 3-player marimba

Making a box-resonated marimba involves:

- constructing a frame with legs
- adding a box with baffles to resonate the bars
- making and tuning the bars
- making the beaters.

Pitch range of the marimbas in this book



Bass Marimba (2 octaves)

3-Player Marimbas (3 1/2 octaves)

Minimarimba (13 notes)

MATERIALS REQUIRED

❑ KILN-DRIED HARDWOOD

- 9 metres 65 or 67 x 19mm (decking size).
- 4 metres 55 or 56 x 19mm.

(This can be ripped down from the wider size).

Other timbers such as Merbau, Batu, Kempas, are suitable also. They are rainforest species, as is the rosewood used for orchestral marimbas. Softwoods such as pine will make music but they are much more likely to go out of tune.

IMPORTANT: When buying this timber, make sure it is free of cracks, splits, large knots, prominent saplines or warping.

❑ PINE

- 2 x 2 metre lengths for long sides. 35 x 70mm.
- 1 metre for the ends. 35 x 70mm also.
- 6 metres 35 x 40 (approx) for the legs.
- 3 metres 42 x 19mm for rungs and box.

❑ PLY

- A sheet of 7mm ply approx 600 x 1200mm for the sides, and another piece 600 x 800 for the end and partitions. Thinner ply is not suitable.
- A piece of 12mm ply, chipboard or craftwood 300 x 1300mm for the floor of the box.

❑ DOWEL

- 22mm hardwood dowel – 600mm for 2 bass beaters.
- 19mm hardwood dowel – 600mm for 2 middle beaters.
- 12mm hardwood dowel – 1200mm for 4 treble beaters.

Pipe Resonated 3 1/2 Octave Marimba

Making the Bars

1. From 67 x 19 kiln-dried hardwood cut out the lengths as shown in the table below. The 2/9th points are the nodes, at which the bars can be suspended.

2. If you want to round off the upper edges of the bars with a router, do that first.

3. Drill one 9/32" (7mm) hole at the 2/9th point of each bar. Make sure the hole is centrally located. Drill larger holes if plastic tubing has been fitted over the nails.

4. Mark each bar with the section to be chiselled out. (Diagram 8). The chiselled section should be a little over 1/3 of the total length of the bar. Make sure the chiselled area doesn't reach the hole or the 2/9th point at the other end.

5. Halfway along the underside of the bar, use a tenon saw to make a horizontal saw cut. For the longer bars this cut can be up to 6mm deep. For notes in the middle range, make the cut no more than 3mm deep. For the narrow bars make the sawcut about 2mm deep and for the 4 highest notes make no sawcut until you have checked the pitch of the bar.

6. To check the pitch of a bar, hold it vertically between the thumb and forefinger at the node. Strike it repeatedly with the appropriate size beater as close as possible to the chromatic tuner (Diagram 9).

7. If the pitch is still well above that required, the saw cut can be

Pipe Resonated 2 Octave Bass Marimba

This marimba extends down into the contrabass region. Its range is 2 octaves with a lowest note of C (64Hz). It is diatonic, but by using the adaptors described, sharps and flats can be substituted.

Many modifications have been made over the past few years in an attempt to make the instrument practical for playing in schools and performing groups. These include:

1. Adaptors for the resonating pipes to enable them to resonate notes a semitone lower.
2. Mounting the resonators in 2 modules for portability.
3. Using thinner hardwood for the tone bars.
4. Extending the range to 2 octaves so that 2 players have all the notes they require or for 1 player to be more flexible.
5. Adjustable buzzers to provide varying amounts of 'buzz' – the timbre associated with African marimbas. (Not recommended for primary school instruments.)

Far left:
Jon Madin playing the bass marimba described in this book.

Left:
Students at Christ Church Grammar School, Perth play on a bass marimba, a 3-player marimba and xylophones.

Minimarimba

Acting on a suggestion from teachers at the Ocean Grove Primary School, I designed a small portable xylophone similar in size and range to commercially available instruments, but one that could be built by students with some adult help, that had a satisfying tone and was fully portable. The bars and beaters can fit inside and are enclosed by a lid. An alternative name might be the Can Can Minimarimba. In the key of C the range of the famous tune fits this instrument exactly!

All materials for this instrument should be available from local wood, hardware and camping shops. If you are planning to make multiple instruments, templates of the sides, ends etc. might be useful for the students to copy.

Tuning the tone bars is the biggest job. Using a power tool to remove some of the wood from the underside of bars may help, leaving students to chisel or rasp the final amount needed to tune the instrument correctly.

N.B. Instructions for bar-tuning are located in the 3-player marimba section on page 16, but be sure to use the bar lengths for this minimarimba as detailed on page 47.

Minimarimbas made by the children at Ocean Grove Primary School. The pitch range is shown on Page 4.

More from Jon Madin at: https://jonmadinmarimbasusa.com

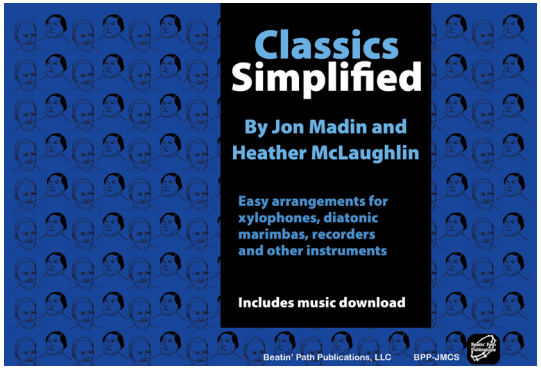
More Marimba Music at: https://bppub.net/BPP_Marimba_Music

Books and CDs available from:

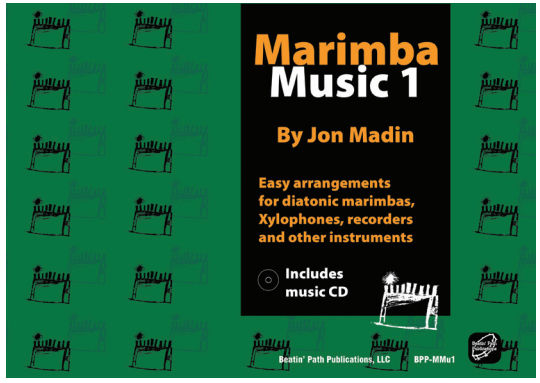
Beatin' Path Publications, LLC
302 East College Street, Bridgewater, VA 22812.
540-478-4833 • beatinpath@mac.com
www.beatinpathpublications.com

Marimba Music for Little Kids
is a collection of songs with simple tuned percussion parts associated with them. For the youngest children - 5-6 year olds - the songs involve lots of actions and only a few specific notes.

Make your Own Wacky Instruments
Illustrated instructions for making homemade musical instruments for Schools, parades and just for fun. The designs range from rubber glove hooters to blue barrel drums. Many of the instruments are suitable for classroom construction, while other require a more technical approach.



Classics Simplified
Easy arrangements for xylophones, diatonic marimbas, recorders and other instruments, of paraphrases of popular classical music.



Marimba Music 1 (book and CD)
Simple arrangement for diatonic marimbas, xylophones and other instruments. The pieces are designed to include easy and more challenging parts to suit multi level classes. Children can progress to harder parts and harder pieces. The accompany CD is instrumental only.

Marimba Music 2 (book and CD)
This is similar to Marimba Music 1, except that the pieces are pitched at a slightly higher level. They are suitable for upper primary and Junior high school classes. This book includes a marimba arrangement of the 'Heel Toe' melody, a simple 12-bar song and tunes inspired by Indonesian, African and Reggae music.

Marimba Songs
This is a collection of songs for children with easy arrangements for marimbas and xylophones. It is designed mainly for middle and upper primary school children.


Buy Your Copy Now!
Buy Your E-Book Now!
$29.95
N 978-0-9894773-0-7
52995>
0989 477307