

Arithmophone Korale Web App - quickstart guide

INTRODUCTION

The Arithmophone Korale Web App is a browser-based musical instrument that you can play from your phone or tablet. It offers a wide selection of diatonic and pentatonic scales in just intonation, and direct access to many sound-shaping parameters. Read on below for a description of all the functions of the Arithmophone Korale.








KEYBOARD

The layout of the keys on the Arithmophone Korale is inspired by the Kora, a traditional West-African harp. The Kora has 21 strings, 11 on the left hand side and 10 on the right. The strings are tuned to a diatonic scale (a scale with 7 notes per octave, like the familiar "Do Re Mi Fa Sol La Ti Do").

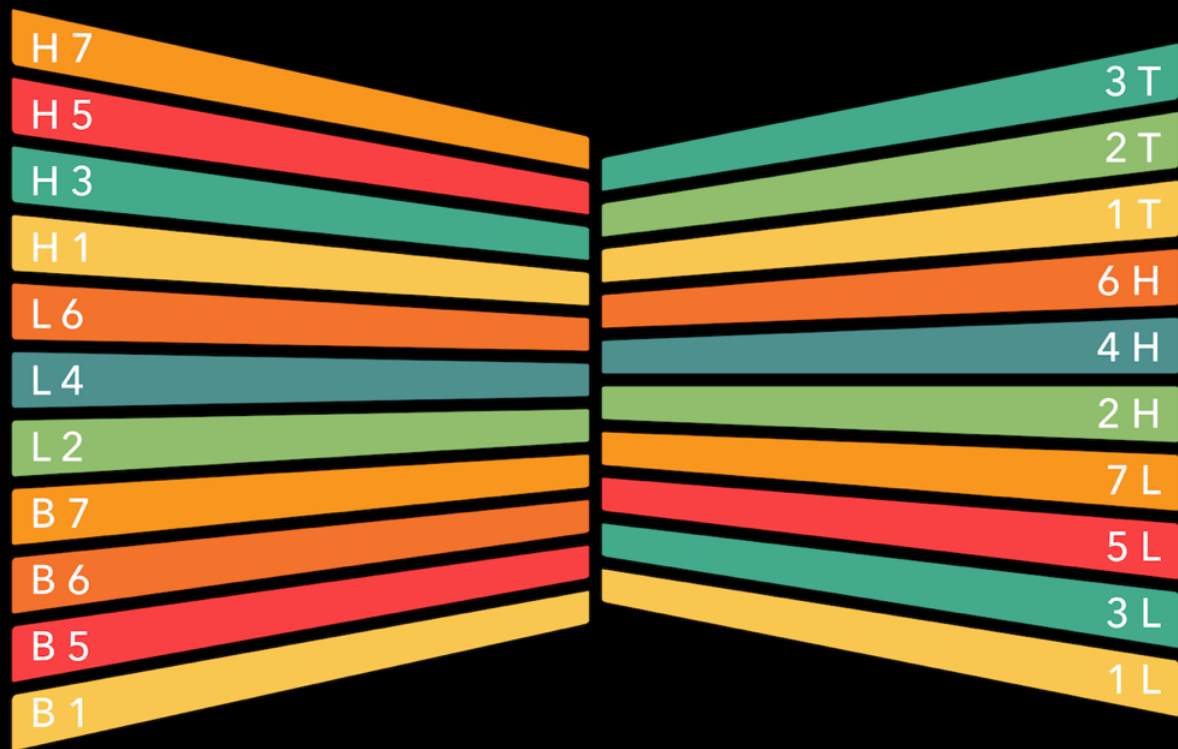
The Arithmophone Korale closely follows the note pattern of the Kora, with the notes arranged in such a way that scales and melodies are easily playable by alternating the left and right hand. The notes cover a range of two complete octaves in the middle, with incomplete octaves above and below.

On the Korale, the colours of the keys show the scale note they produce, like this:

COLOURS ON THE ARITHMOPHONE KORALE

-  First note of the diatonic scale (Do / Sa)
-  Second note of the diatonic scale (Re)
-  Third note of the diatonic scale (Mi / Ga)
-  Fourth note of the diatonic scale (Fa / Ma)
-  Fifth note of the diatonic scale (Sol / Pa)
-  Sixth note of the diatonic scale (La / Dha)
-  Seventh note of the diatonic scale (Ti / Ni)

The precise note pattern goes like this (with the letters standing for the octave the notes are in, from lowest to highest - Bass, Low, High, Treble):



To get started, try playing a scale starting on '1 L' with your right hand, then 'L 2' with your left hand, then '3 L' with your right hand again et cetera, continuing to alternate between left and right. Once you get familiar with this pattern up and down the scales for the 'L' and 'H' octaves, start adding in the 'B' and 'T' notes to explore the complete range of the keyboard.

The Korale also has a Pentatonic mode. Instead of 7 notes per octave, you only get 5 and instead of 21 keys you only get 17. Although you won't be able to play as many different melodies in Pentatonic mode, these scales have their own specific character. And because the pentatonic keyboard layout has fewer and larger keys, this mode is especially suitable for smaller screens and for beginning musicians.

CONTROLS & OPTIONS

On Android and Windows devices, you can click the button labeled **F** at the top of the screen to enter full screen mode. This makes the keys as large as possible for the best playing experience. On Apple devices, full screen mode is blocked for web apps, but you can get a similar result by hiding the toolbar. To do this, you can click on the **AA** icon in the address bar, then select 'Hide Toolbar' in the menu.

The button at the bottom labeled **O** brings up the options screen. You can still play the keys while the options are visible, although there is less room for them now. If you prefer, you can hide the options again when you are done adjusting the scales and sound parameters by pressing the **O** button once more. This will again display the full keyboard view.

The three buttons at the top of the options screen let you select different waveforms:

- o** = Sine wave (dark, round sound)
- Δ** = Triangle wave (warm, mellow sound)
- = Square wave (bright, sparkly sound)

The numbered buttons let you switch between different scales. There are 21 options to choose from, each with a different selection of notes. Read about them in the **SCALES** section of this manual, or better yet, just try them out to hear the differences.

Below the numbered scale buttons, there is a button labeled **L**, for low key mode. Enabling this mode switches the second lowest key on the left side down by one scale note. For some scales this layout makes more sense. When you switch scales with the numbered buttons, low key mode is automatically enabled or disabled, depending on the scale, but you can always change this by pressing the **L** button.

Below this, there are three more buttons. These have the following functions:

- S** = Switch between scale selection view and slider view
- M** = Switch to monophonic mode
- K** = Switch between pentatonic and diatonic keyboard mode

In standard mode (the **M** button is blue), the Arithmophone Korale can sound up to 4 notes at a time, so you can play chords as well as melodies. In monophonic mode (the **M** button is red), the Arithmophone Korale will sound only one note at a time. This gives a different kind of sound, less like a piano or a guitar and more like a saxophone or a vintage synthesizer.

SLIDERS

The sliders give you several options to change the sound of the Arithmophone Korale. From top to bottom, these sliders have the following functions:

Slider 1: Delay mix

There is a stereo delay on the Arithmophone, that produces echoes to make the sound more wide and spacious. The blue slider determines the amount of delay that is mixed in with the original sound. Low values (slider to the left) give less delay, high values (slider to the right) give more delay. When the slider is completely to the left, there is no delay at all mixed in.

Slider 2: Delay feedback

This slider determines how many echoes are produced by the delay. Low values give only a few echos, while at high values the echoes go on for a long time.

Slider 3: Delay time

This slider determines the time between echoes. At low values, the echoes follow each other very quickly, like in a small room. At high values, there is a lot of time between echoes, like in a large cave or a canyon.

Slider 4: Vibrato

This slider determines the vibrato added to the notes. Vibrato is a slight 'wobble' in pitch that can make notes sound more lively and expressive. At the lowest value there is no effect at all, at the highest value there is a very fast and pronounced effect.

Slider 5: Attack

This slider determines how quickly the notes rise to full volume. Low values give a snappy sound (like a piano or a guitar), high values give a softer start of the sound (like a violin or a cello).

Slider 6: Decay

This slider determines how long the notes ring out. Low values make for short notes, high values make for longer notes.

Slider 7: Pitch

By default, the Arithmophone is tuned to F. With the red slider, you can change the pitch up in semitone steps, all the way up to the next F, one octave higher.

SCALES

The Arithmophone Korale features 40 different scales (21 diatonic scales and 19 pentatonic scales). Depending on your musical background, some of these scales will sound very familiar, others will sound more exotic.

There are 21 scale selector buttons, each of these will activate a different pair of scales (1 diatonic, 1 pentatonic). In a few cases, different diatonic scales have the same pentatonic scale associated with them, hence only 19 different pentatonic scales.

The notes in each pentatonic scale are always a subset of the notes in the corresponding diatonic scale. Which 5 out of the 7 notes are used is different per scale. The colours of the pentatonic keys are automatically adjusted to reflect the note selection as you switch between scales.

Behind the scenes, the Korale web app works with one large scale containing 21 different notes. From these notes, 5 or 7 are selected for each available scale. This is done in such a way that the notes of the playable scale are always related to each other in a musically meaningful way.

A note for Kora players: I tried to work out which scales are the best possible match for traditional Kora tunings. Although I don't play the kora myself and the information I found online was a bit contradictory at times, this little list should provide a useful starting point:

- Sauta: 01 (Lydian Type A)
- Hardino: 02 (Ionian Type A)
- Sila ba (Tomora ba): 09 (Ionian type B)
- Tomora Mesengo: 20 (Septimal down II)

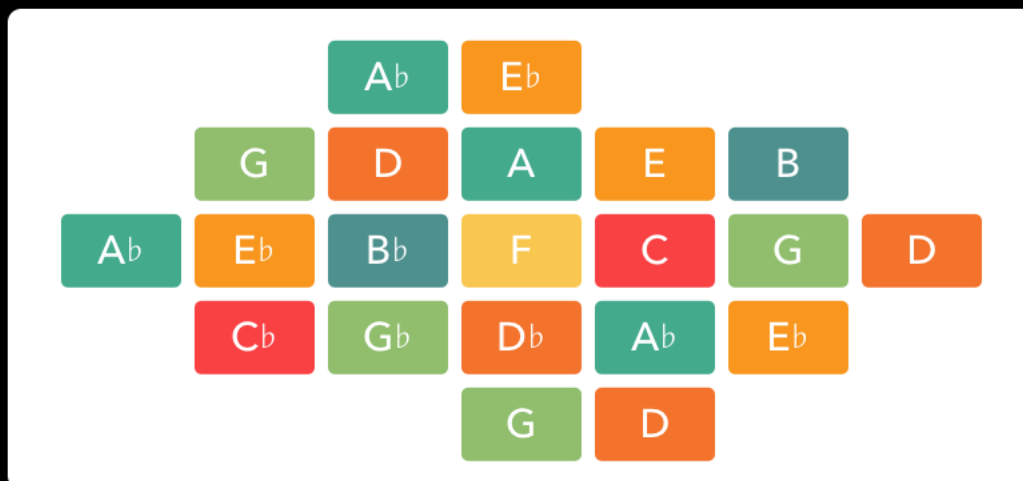
The full set of ratios that are used in the Korale scales, looks like this:

Korale - available ratios



In the key of F (the default tuning of the Arithmophone Korale, and also the most common key for tuning the original Kora), this produces the following notes:

Korale - available notes



Using this diagram as a starting point, all the scales available on the Arithmophone Korale are listed on the following pages.

For a more detailed explanation of just intonation tuning, the way it is implemented on the Arithmophone Korale and the names given to all the different scale types, please visit: chielzwinkels.net/arithmophone/background

Arithmophone Korale

diatonic scale notes

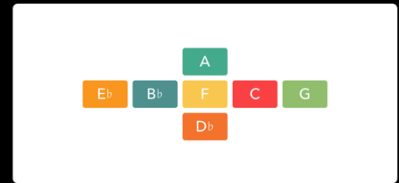
01 - Lydian Type A



08 - Harmonic Major



15 - Melodic Major



02 - Ionian Type A



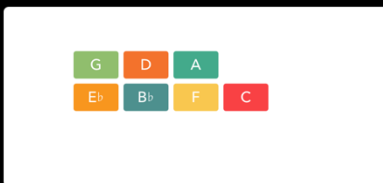
09 - Ionian Type B



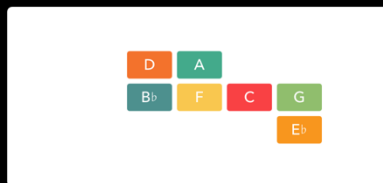
16 - Septimal Up II



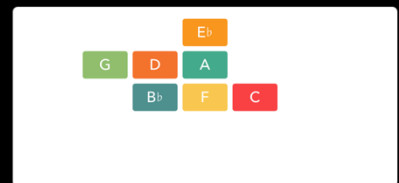
03 - Mixolydian Type B



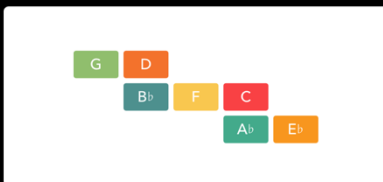
10 - Mixolydian Type D



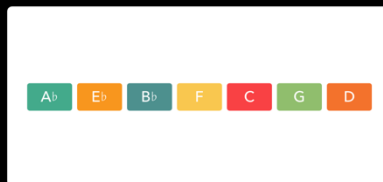
17 - Septimal Up I



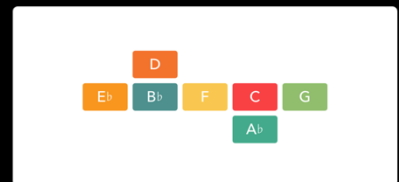
04 - Dorian Type E



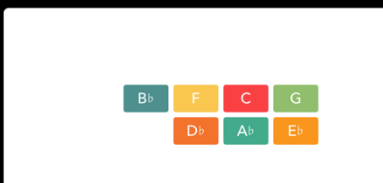
11 - Pythagorean



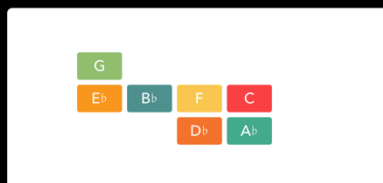
18 - Dorian Type F



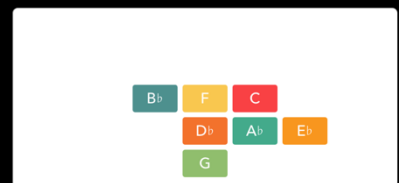
05 - Aeolian Type A



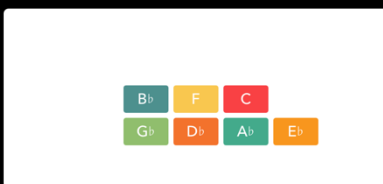
12 - Aeolian Type C



19 - Septimal Down I



06 - Phrygian Type B



13 - Phrygian Type A



20 - Septimal Down II



07 - Locrian Type B



14 - Freygish



21 - Double Harmonic



Arithmophone Korale

pentatonic scale notes

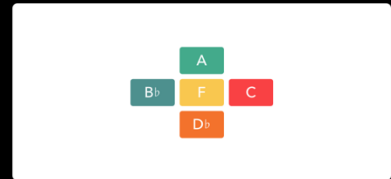
01 - Sun Occident O



08 - Sun Orient O



15 - Symmetry C



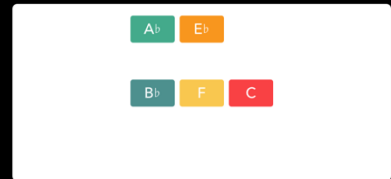
02 - Sun Occident U



09 - Sun Mirror O



16 - Septimal Up B



03 - Sun Orient U



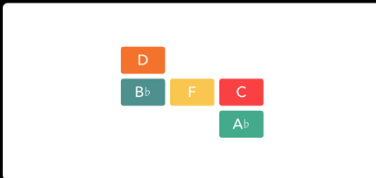
10 - Sun Mirror U



17 - Septimal Up A



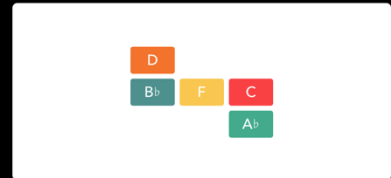
04 - Symmetry A



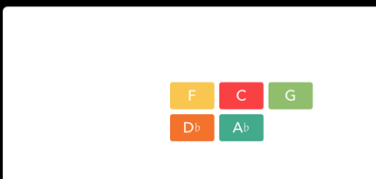
11 - Symmetry B



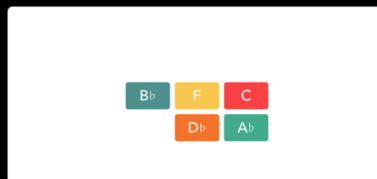
18 - Symmetry A



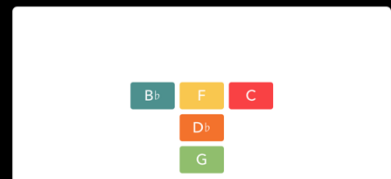
05 - Moon Orient O



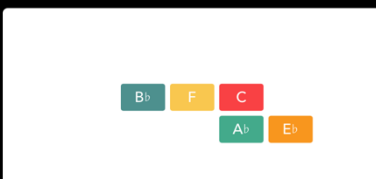
12 - Moon Mirror O



19 - Septimal Down A



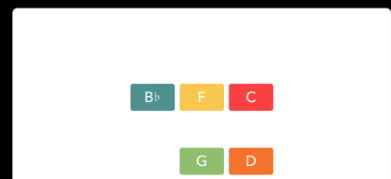
06 - Moon Occident O



13 - Moon Mirror U



20 - Septimal Down B



07 - Moon Occident U



14 - Moon Orient U



21 - Symmetry C

