

## The 9 Note Fourth Octave Bugle Overtone Scale (Bb) Singable by Transposition

The notes played on the Bugle for Bugle Calls using the Bugle Scale are overtones of the low fundamental note (the lowest note that can be played on the Bugle). For the Bb Bugle the vibrations of the fundamental root sound are approx 30 hz.(29.135 with A=440)

Intervals between the notes of the Bugle Scale are sequentially smaller as they are played with higher frequencies.

Using 30 Hz as the fundamental for easy calculation ( Bb = 29.135 Hz with A=440) the table shows the intervals.

Ratio/ Hertz				Interval
1x	30	1x	30	Fundamental
2x	60	1x - 2x	30-60	Octave.
3x	90	2x - 3x	60-90	Perfect Fifth
4x	120	3x - 4x	90-120	Perfect Fourth
5x	150	4x - 5x	120-150	Major Third (Just intonation)
6x	180	5x -6x	150 - 180	Minor Third (Just intonation)
7x	210	6x -7x	180 - 210	Flattened Minor Third (Just intonation)
8x	240	7x -8x	210 - 240	Sharpened Major 2nd (Just intonation)

The 7x frequency is used in a cappella music. Opportunities come in well tempered music to sing/play over the accompaniment using Just Intonation., eg., The Major Third with a 5/4 sounding over the root of the chord, gives added resonance to the chord.

Octave 1 has two notes only, the Octave (Unison Interval).

Octave 2 has three notes with added Fifth.

Octave 3 has five notes with added Third, Fifth, and Seventh,

Octave 4 has nine notes with added Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Fifteenth.

Octave 5 has 17 notes

Bugle calls are played using Octaves 2 and 3. Octave 4 and 5 are too high to play but in reality exist.

By transposing downwards two octaves a Baritone can sing the nine note scale of Octave 4. The notes fit with the singers lower octave singing range. Likewise by transposing the 17 notes of Octave 5 down two octaves the notes fit with the singers upper octave singing range This gives a thirty two note scale, but the notes harmonise with each other, all being related to the fundamental frequency.

Start singing Just Intonation of the Bugle scale. Find a resonant bathroom to sing round the scale transposing to keep the notes within the octave range. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16.

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