

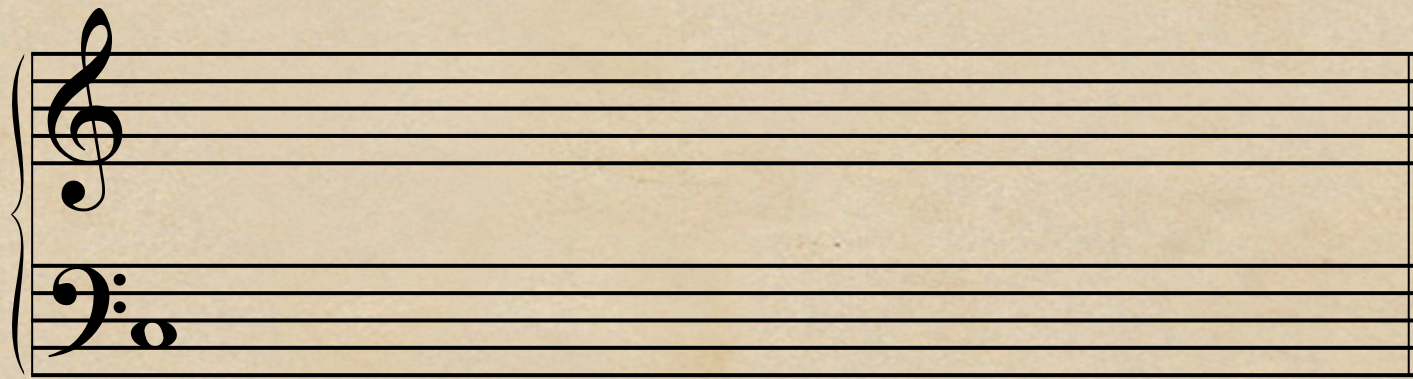
Partial to the Winds

Scott and Max McKee

ABC's
of the
Overtone Series

Overtone Series

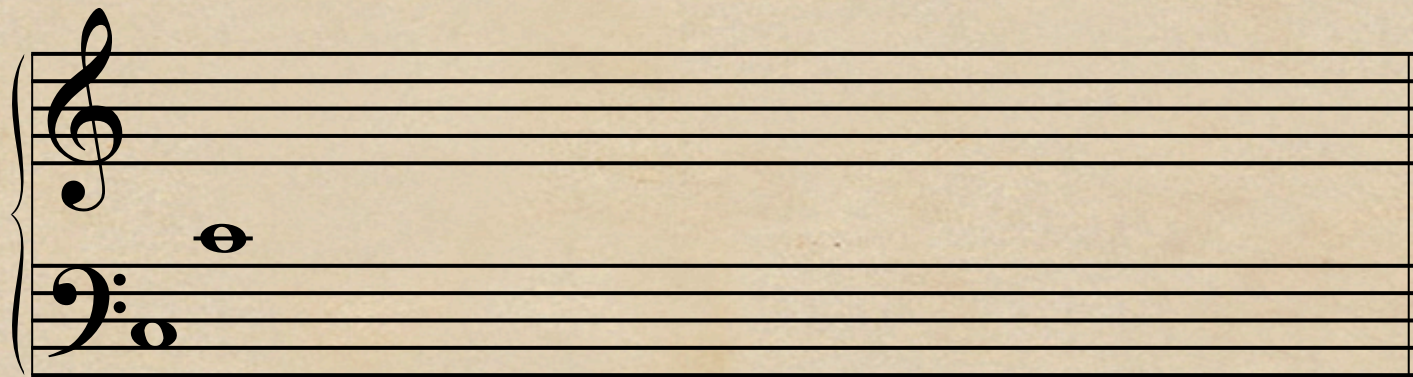
Building the Series



1
Partial

Overtone Series

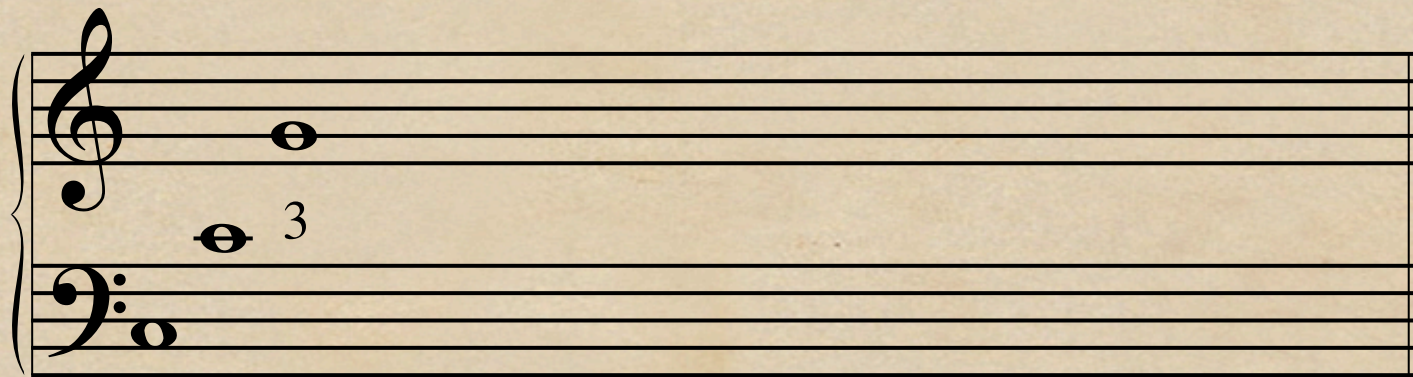
Building the Series



1 2
Partial

Overtone Series

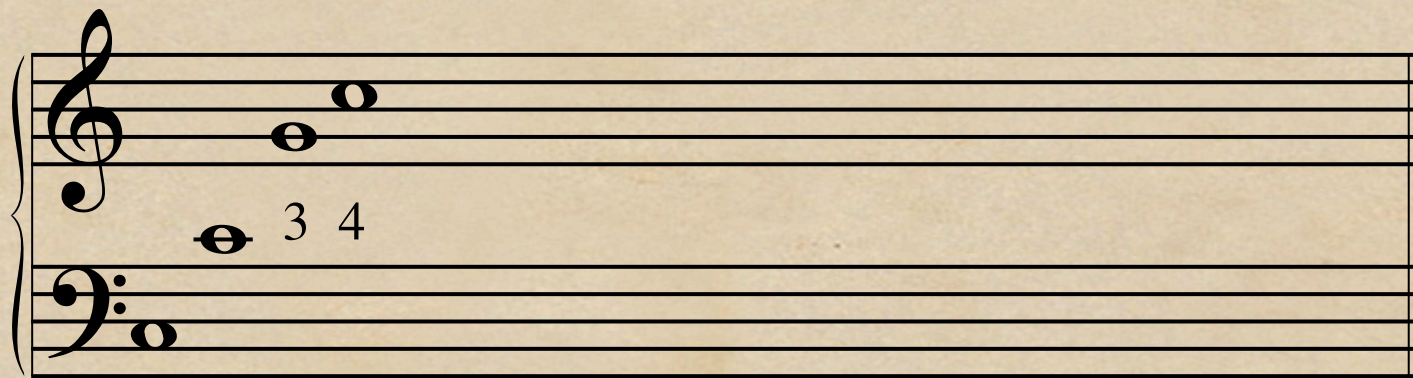
Building the Series



1 2
Partial

Overtone Series

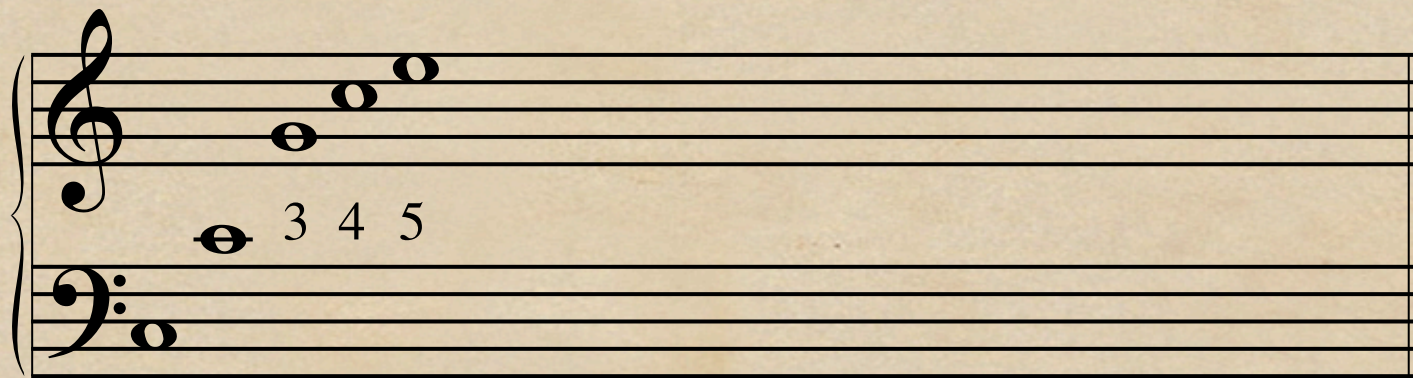
Building the Series



1 2
Partial

Overtone Series

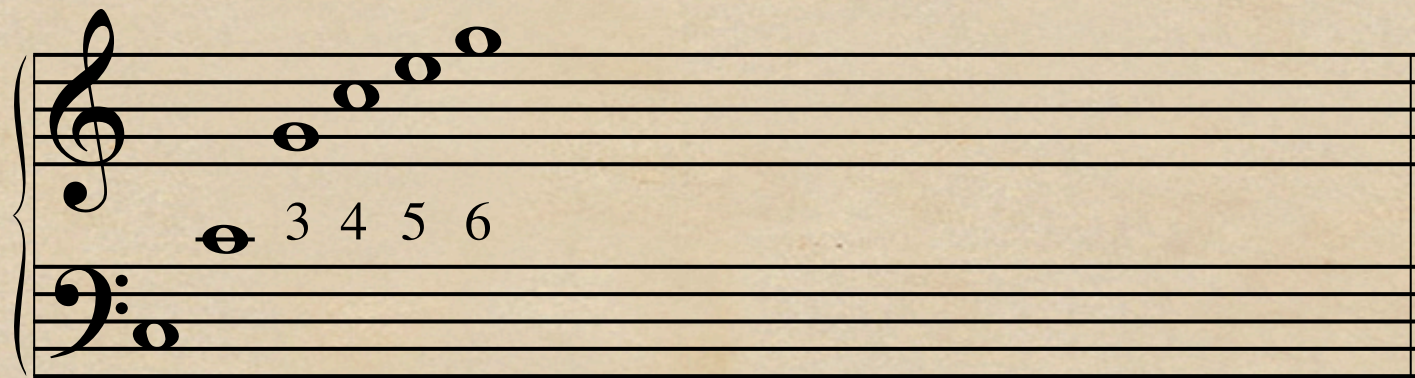
Building the Series



1 2
Partial

Overtone Series

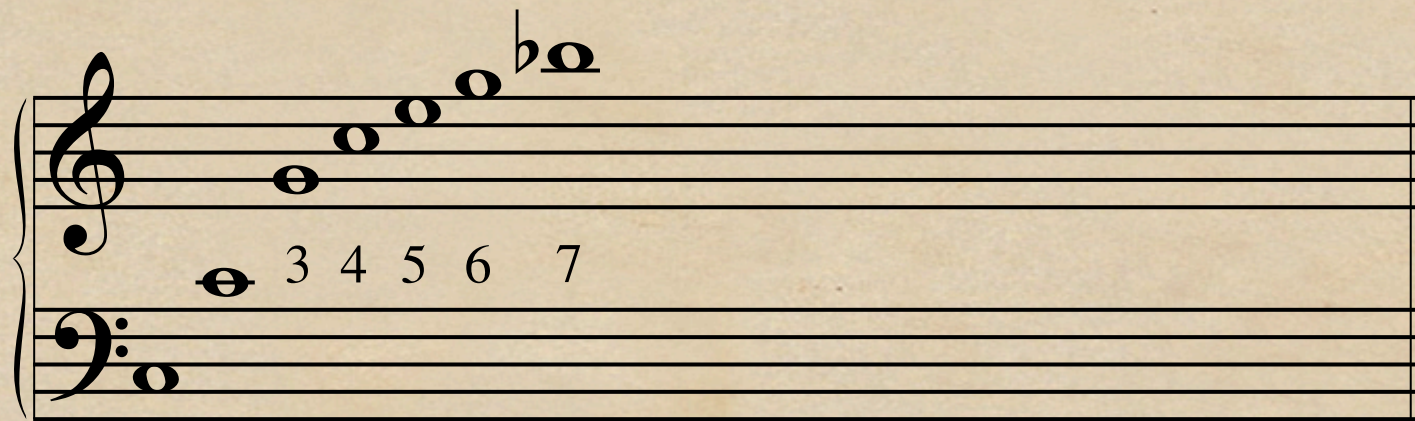
Building the Series



1 2
Partial

Overtone Series

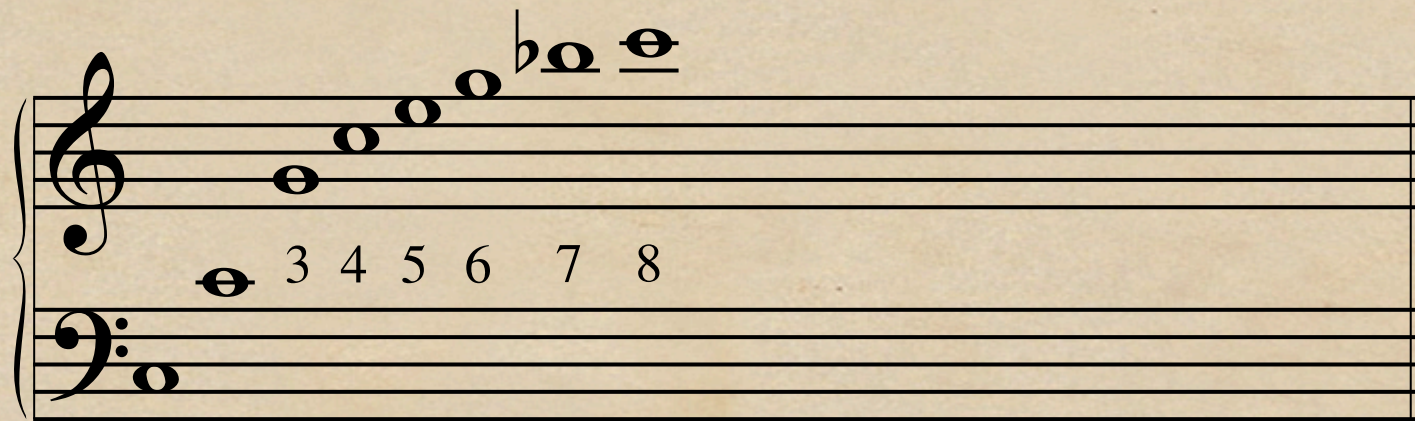
Building the Series



1 2
Partial

Overtone Series

Building the Series



1 2
Partial

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating an overtone series. The notes are: C2 (bass clef), C3 (bass clef), G2 (bass clef), C3 (bass clef), D3 (bass clef), E3 (bass clef), F3 (bass clef), G3 (bass clef), A3 (bass clef), B3 (bass clef), C4 (treble clef), D4 (treble clef), E4 (treble clef), F4 (treble clef), G4 (treble clef), A4 (treble clef), B4 (treble clef), and C5 (treble clef). The notes are numbered 1 through 9 below the bass clef staff. The notes C4, D4, E4, and F4 are underlined. The notes G4, A4, and B4 are underlined and have a flat symbol above them.

1 2
Partial

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the first ten partials of an overtone series. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (F3), 7 (G3), 8 (A3), 9 (B3), and 10 (C4). The notes for partials 7, 8, 9, and 10 are marked with a flat symbol and underlined. The notes for partials 3, 4, 5, 6, 7, 8, 9, and 10 are numbered below the staff.

1 2
Partial

Overtone Series

Building the Series

A musical staff with a treble clef on the top line and a bass clef on the bottom line. The notes of the overtone series are written as follows:
 - Treble clef:
 - Note 3: G4 (first line)
 - Note 4: A4 (second line)
 - Note 5: B4 (second space)
 - Note 6: C5 (third line)
 - Note 7: D5 (third space)
 - Note 8: E5 (fourth line)
 - Note 9: F5 (fourth space)
 - Note 10: G5 (fifth line)
 - Note 11: A5 (first ledger line above)
 - Bass clef:
 - Note 1: C4 (second space)
 - Note 2: C4 (second space)
 The notes are numbered 1 through 11 below the staff. The 11th note (A5) has a sharp sign (#) above it.

1 2
Partial

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the first 12 partials of an overtone series. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (F3), 7 (Bb2), 8 (C3), 9 (D3), 10 (E3), 11 (F#3), 12 (G3). The notes are placed on the staff lines and are underlined. The 11th partial (F#3) is marked with a sharp sign. The 7th partial (Bb2) is marked with a flat sign. The 12th partial (G3) is marked with a sharp sign.

1 2
Partial

Overtone Series

3, 6, 12 = Sharp

5, 10 = Flat

7, 14 = Very Flat

① ②

1, 2, 4, 8, 16 = OK

(sung to 3 Blind Mice)

3, 6, 12, 3, 6, 12

All are slightly sharp, all are slightly sharp
 5 & 10 are moderately flat, 5 & 10 are moderately flat
 and 7 is very flat, 7 is very flat!

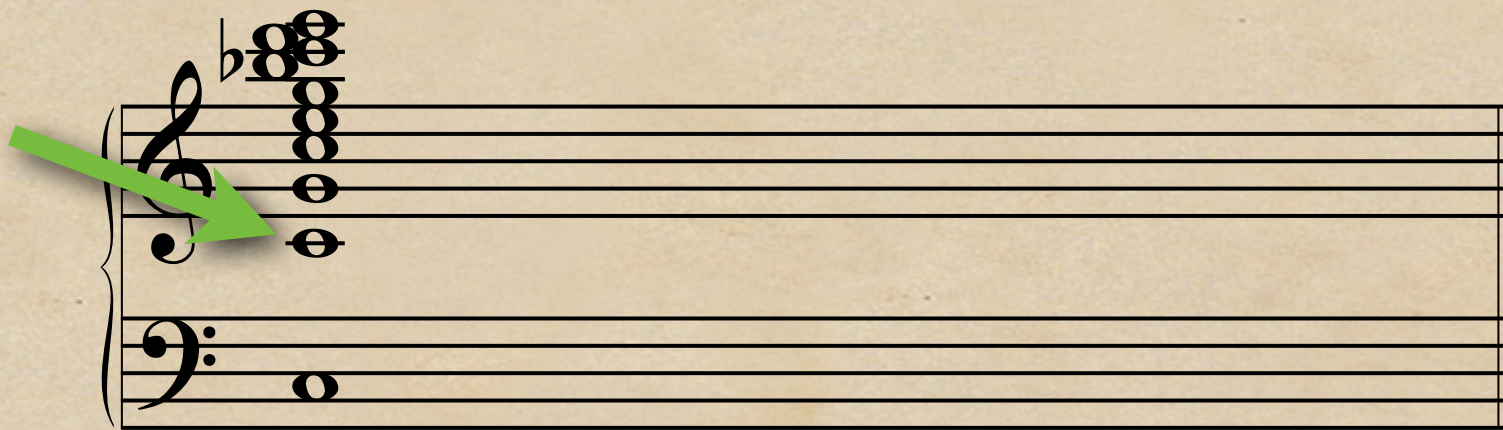
Overtone Series Part 2

THE SEVEN SERIES

Overtone Series



C Series (open)



OPEN

Overtone Series



A Series (12 or 3)

The image shows musical notation for the overtone series of A. It consists of two staves: a treble clef staff and a bass clef staff. The notes are as follows:

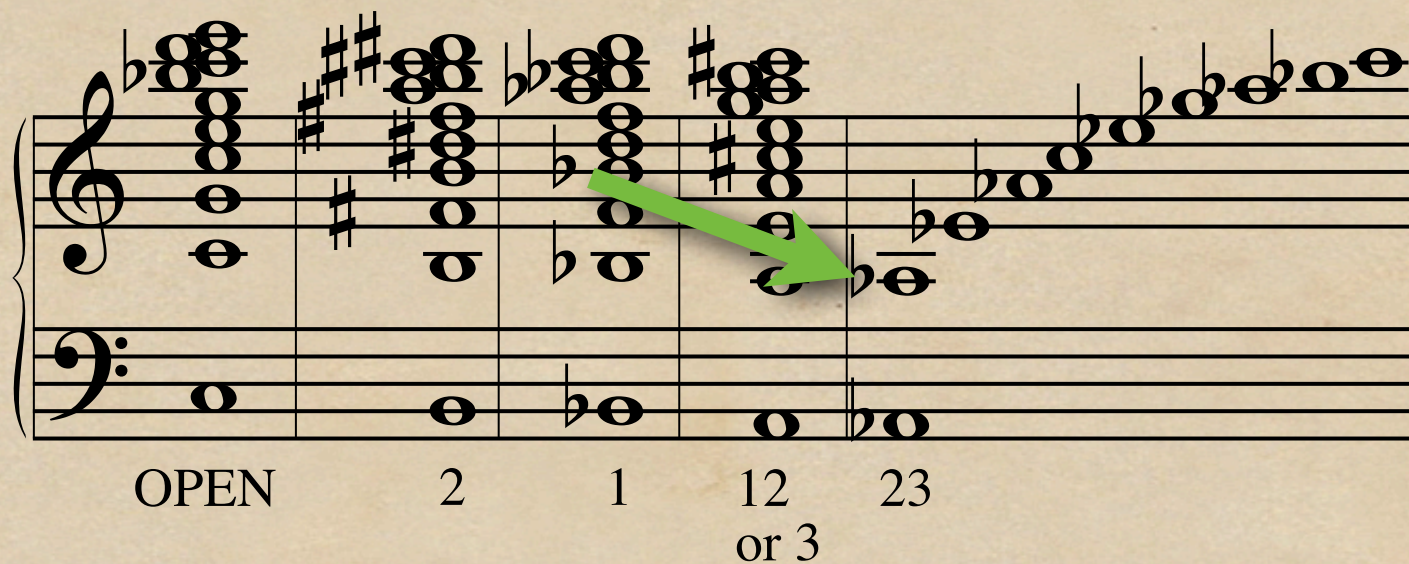
- First measure: Treble clef has a whole note A2 (two ledger lines below); Bass clef has a whole note A2 (two ledger lines below). Labeled "OPEN".
- Second measure: Treble clef has a whole note A3 (first line); Bass clef has a whole note A2 (two ledger lines below). Labeled "2".
- Third measure: Treble clef has a whole note B3 (first space); Bass clef has a whole note A2 (two ledger lines below). Labeled "1".
- Fourth measure: Treble clef has a whole note C4 (second line); Bass clef has a whole note A2 (two ledger lines below). Labeled "12 or 3".

A green arrow points from the A3 note in the second measure to the C4 note in the fourth measure.

Overtone Series



Ab Series (23)

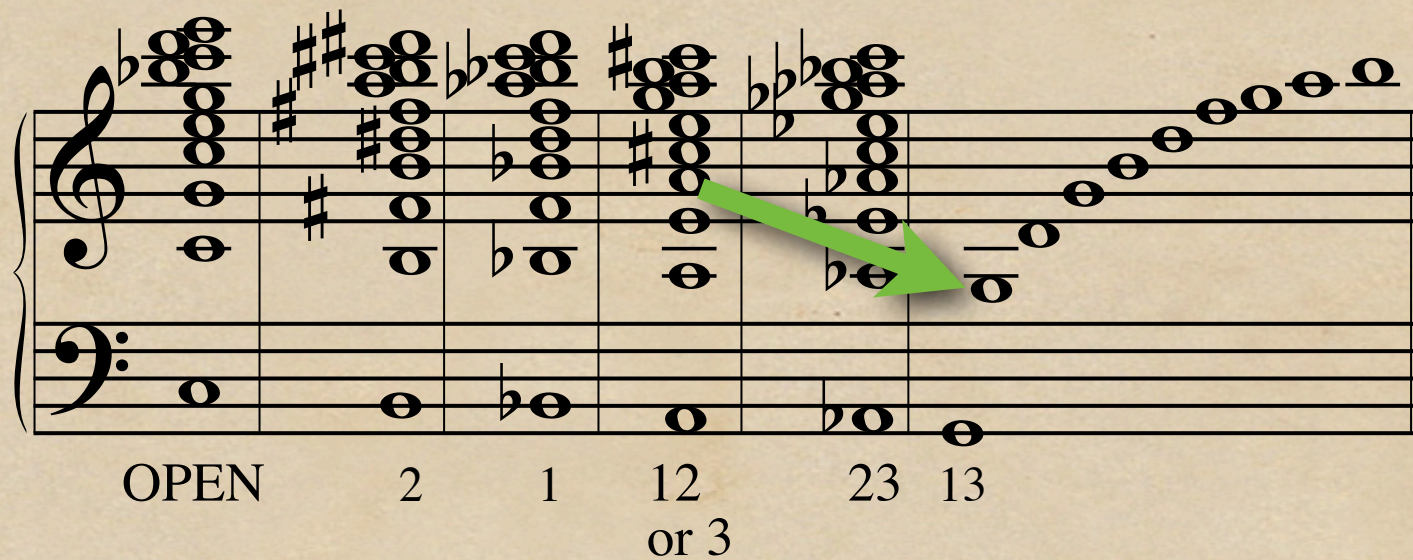


Musical notation for the Ab overtone series, showing the first five harmonics (OPEN, 2, 1, 12, 23) and the label "or 3" under the 12th harmonic. A green arrow points to the 12th harmonic.

Overtone Series



G Series (13)

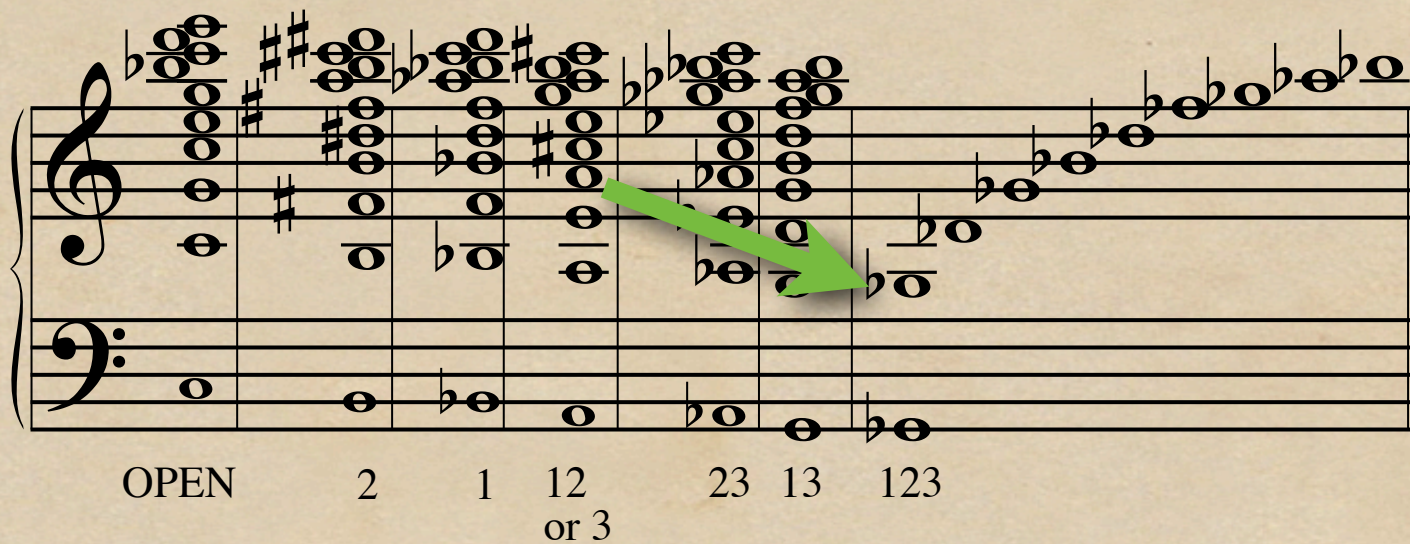


OPEN 2 1 12 23 13
or 3

Overtone Series



Gb Series (123)



Musical notation for the Gb Series (123) on a grand staff. The notes are: OPEN (G2), 2 (G3), 1 (Bb3), 12 or 3 (D4), 23 (Eb4), 13 (F4), and 123 (Gb4). A green arrow points to the 13th harmonic (F4) in the treble clef.

Overtone Series

Pitch Tendencies (valves)

The diagram illustrates the overtone series for a trumpet with various valve combinations. Above the musical notation are seven valve configurations, each with a label in a colored box: 'ok' (brown circle), 's#' (red triangle), '*sb' (blue square), 'm#' (red triangle), and 'v#' (red triangle). Below the notation are the valve positions: 'OPEN', '2', '1', '12 or 3', '23', '13', and '123'. The musical notation shows the overtone series for each configuration, with the bass clef indicating the fundamental pitch and the treble clef showing the overtones. The '12 or 3' position includes a blue square with '*sb' next to it.

* Can vary depending on the manufacturer.

Overtone Series



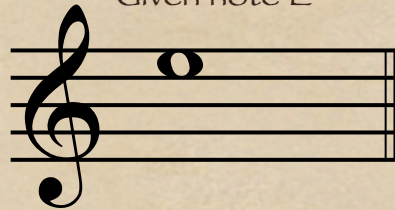
ALL POSSIBLE FINGERINGS

Overtone Series

All possible fingerings

Trumpet

Given note E



OPEN 2 1 12
or 3 23 13 #123

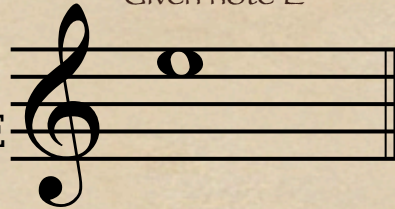
Overtone Series

All possible fingerings

Trumpet

- Check for given note **NONE**

Given note E



OPEN 2 1 12 23 13 #123

or 3

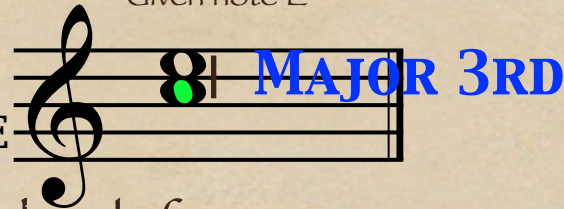
The diagram shows a musical staff with seven measures, each containing a note and its corresponding overtone series. The notes are E, G, B, C, D, E, and F. The overtone series are shown as groups of notes on a staff, with various accidentals (sharps and flats) indicating the specific notes. Below the staff, the fingerings for each note are listed: OPEN, 2, 1, 12, 23, 13, and #123. The note F is marked with a sharp (#) before the fingering #123. The note E is marked with a sharp (#) before the fingering #123.

Overtone Series

All possible fingerings

Trumpet

Given note E



- ◆ Check for given note **NONE**
- ◆ Think down Major 3rd, check for series **OPEN**

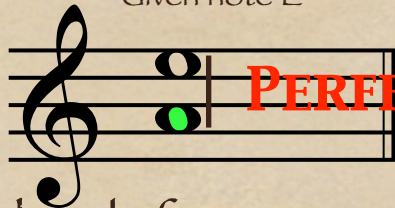
OPEN 2 1 12
or 3 23 13 #123

Overtone Series

All possible fingerings

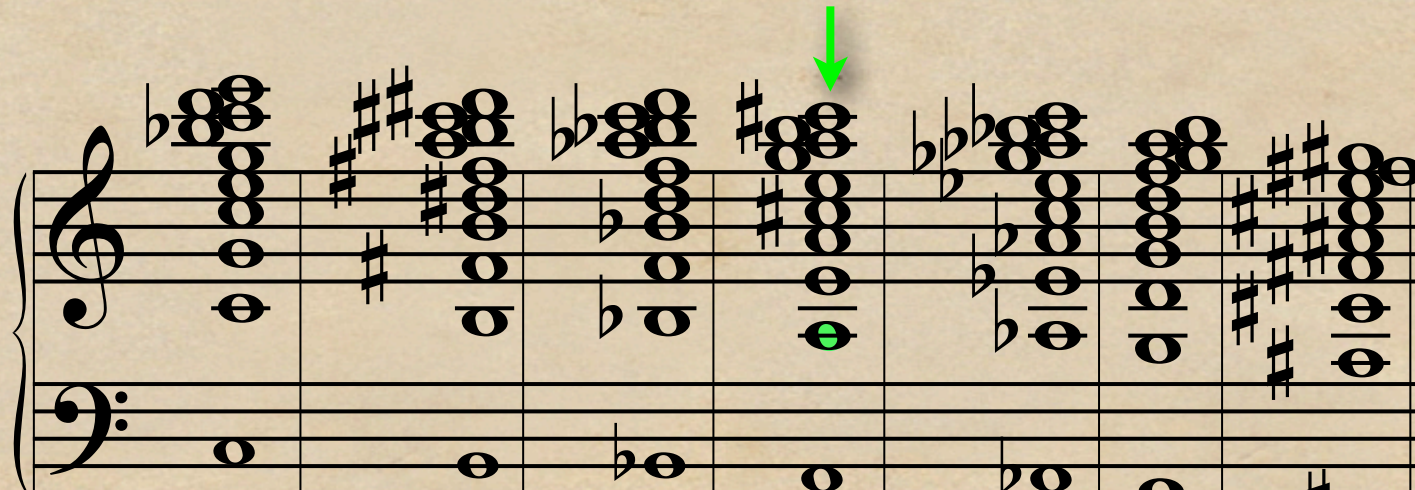
Trumpet

Given note E

Check for given note **NONE**  **PERFECT 5TH**

Think down Major 3rd, check for series **OPEN**

Think down Perfect 5th, check for series **12 OR 3**



OPEN 2 1 12 23 13 #123

or 3

Overtone Series

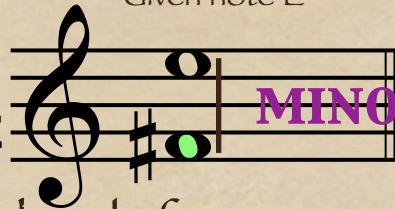
All possible fingerings

Trumpet

Given note E

- ◆ Check for given note **NONE**

NONE



MINOR 7TH

- ◆ Think down Major 3rd, check for series

OPEN

- ◆ Think down Perfect 5th, check for series

12 OR 3

- ◆ Think down minor 7th, check for series

123

OPEN

2

1

12

23

13

#123

or 3



Overtone Series

American Band College

Video Series

Overtone Series

CHOOSE PREFERRED FINGERING

Overtone Series

Choosing preferred fingering

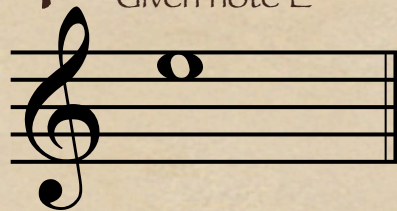
- ◆ Least number of valves,
- ◆ Unless it involves 3rd valve,
- ◆ Or is the 7th partial

Overtone Series

Choosing preferred fingering

Trumpet

Given note E



- ◆ Least number of valves

OPEN 12 OR 3 123

OPEN 2 1 12 23 13 #123

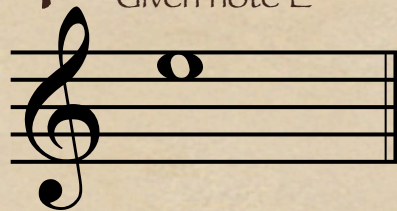
or 3

Overtone Series

Choosing preferred fingering

Trumpet

Given note E



- ◆ Least number of valves,
- ◆ Unless it involves 3rd valve

OPEN ~~12 or 3~~ 123

OPEN 2 1 12 23 13 #123

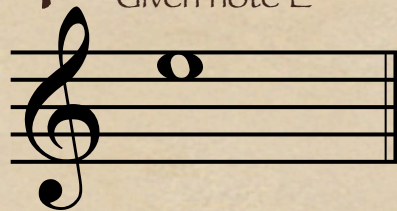
or 3

Overtone Series

Choosing preferred fingering

Trumpet

Given note E



- ◆ Least number of valves,
- ◆ Unless it involves 3rd valve,
- ◆ Or is the 7th partial

OPEN

~~12 or 3~~

~~123~~

OPEN 2 1 12 or 3 23 13 #123

Overtone Series

ALL POSSIBLE FINGERINGS (High Ab)

Overtone Series

All possible fingerings

Trumpet

Given note Ab



- ◆ Check for given note 23

OPEN 2 1 12
or 3 23 13 123

Overtone Series

All possible fingerings

Trumpet

Given note Ab

MAJOR 3RD

- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series **NONE**

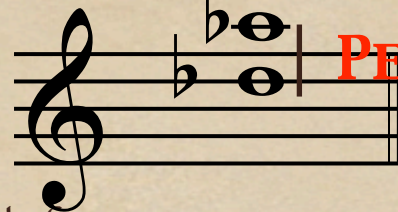
OPEN 2 1 12
or 3 23 13 123

Overtone Series

All possible fingerings

Trumpet

Given note Ab



PERFECT 5TH

- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series **NONE**
- ◆ Think down Perfect 5th, check for series **NONE**



OPEN

2

1

12

23

13

123

or 3

Overtone Series

All possible fingerings

Trumpet

Given note Ab



MINOR 7TH

- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series NONE
- ◆ Think down Perfect 5th, check for series NONE
- ◆ Think down minor 7th, check for series 1

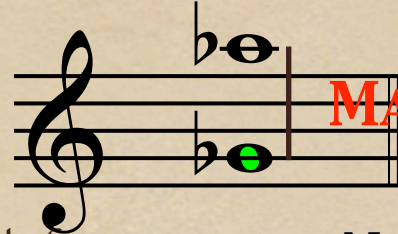
OPEN 2 1 12
or 3 23 13 123

Overtone Series

All possible fingerings

Trumpet

Given note Ab



MAJOR 9TH

- ◆ Check for given note **23**
- ◆ Think down Major 3rd, check for series **NONE**
- ◆ Think down Perfect 5th, check for series **NONE**
- ◆ Think down minor 7th, check for series **1**
- ◆ Think down Major 9th, check for series **123**



OPEN

2

1

12

or 3

23

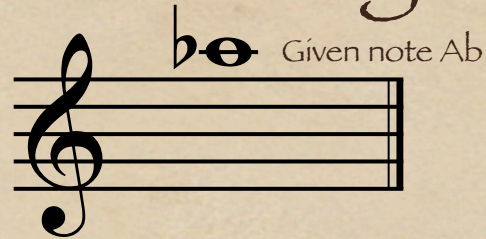
13

123

Overtone Series

All possible fingerings

Trumpet



- There are 3 possible fingerings:

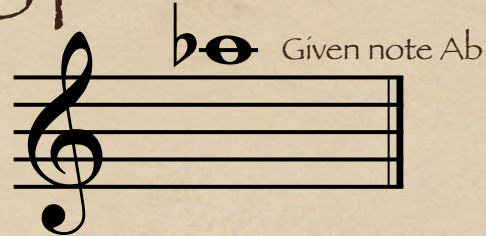
1
23
123

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering

Trumpet



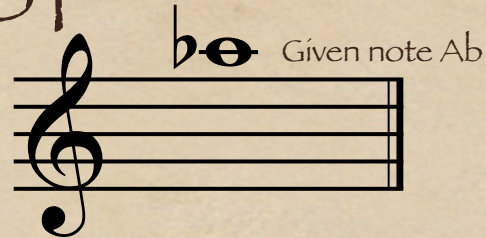
- ◆ Least number of valves

Diagram illustrating the overtone series for the given note Ab, showing various fingering options (numbered 1 through 123) and their corresponding valve combinations (OPEN, 2, 1, 12 or 3, 23, 13, 123). The number '1' is highlighted in a green box, indicating the preferred fingering.

Overtone Series

Choosing preferred fingering

Trumpet



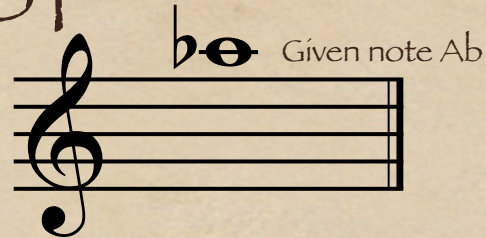
- ◆ Least number of valves
- ◆ Unless it involves 3rd valve

A musical staff showing the overtone series for the note Ab. The notes are arranged in a sequence from lowest to highest. Fingerings are indicated by numbers 1, 2, 3, 12, 23, 13, and 123. A green box highlights the number 1 above the third note. The notes are: Ab (OPEN), Bb (2), C (1), D (12 or 3), Eb (23), F (13), and G (123). The notes are written on a treble clef staff with a bass clef staff below it.

Overtone Series

Choosing preferred fingering

Trumpet



- ◆ Least number of valves
- ◆ Unless it involves 3rd valve
- ◆ Or is the 7th partial

A musical staff showing the overtone series for various trumpet fingerings. The staff is divided into seven measures, each representing a different fingering. The notes are arranged in a way that shows the relationship between the fingerings and their resulting overtone series. The fingerings are labeled below the staff: OPEN, 2, 1, 12 or 3, 23, 13, and 123. The note in the third measure (fingering 1) is highlighted with a green box.

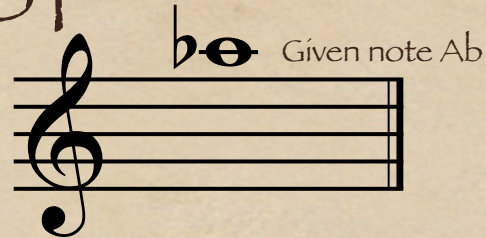
1 23 123

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering

Trumpet



- ◆ Least number of valves
- ◆ Unless it involves 3rd valve
- ◆ Or is the 7th partial

OPEN 2 ~~1~~ 12 or 3 **23** 13 123

Partial Worker

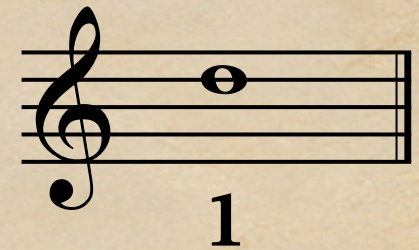
Overtone Series

PITCH TENDENCY (PARTIALS + VALVES)

Overtone Series

Pitch Tendencies (partials + valves)

Trumpet



OPEN 2 1 12 23 13 #123

or 3

Overtone Series

Pitch Tendencies (partials + valves)

Trumpet

OPEN

2

1

5, 10 = Flat

5th partials = flat
 valves = ok
 overall pitch = flat

OPEN 2 1 12 or 3 23 13 #123

Brass Pitch Problems

Holst 2nd Suite • 2nd Mvt

2 B \flat Cor.

B \flat Tpts.

The image shows a musical score for two brass parts: 2 B \flat Cor. (top staff) and B \flat Tpts. (bottom staff). The key signature is two flats (B \flat and E \flat). The top staff has a yellow highlight over the notes G 4 and A 4 in the second measure. The bottom staff has notes G 3 , F 3 , and E 3 in the first measure, and G 3 , F 3 , and E 3 in the second measure.

Brass Pitch Problems

Holst 2nd Suite • 2nd Mvt

2 B \flat Cor.

5th partials = flat

OPEN OPEN 1

B \flat Tpts.

Brass Pitch Problems

Holst 2nd Suite • 2nd Mvt

2 B \flat Cor.

B \flat Tpts.

The image shows a musical score for two brass parts: 2 B \flat Cor. (top staff) and B \flat Tpts. (bottom staff). The music is in 2/4 time and features a key signature of two flats. The top staff contains a melodic line with a slur over two measures. The bottom staff contains a harmonic line with a slur over two measures. A green arrow points from the first measure of the B \flat Tpts. staff to a yellow highlighted area in the second measure, which contains a note that is significantly lower in pitch than the other notes in the staff, indicating a pitch problem.

Overtone Series

Pitch Tendencies (partials + valves)

Trumpet



3rd partials = #

valves = #

overall pitch = #

3, 6, 12 = Sharp

OPEN

2

1

12
or 3

23

13

#123

Brass Pitch Problems

Holst 2nd Suite • 2nd Mvt

2 Bb Cor.

Bb Tpts.

5th partials = flat

3rd partials = #

OPEN OPEN 1

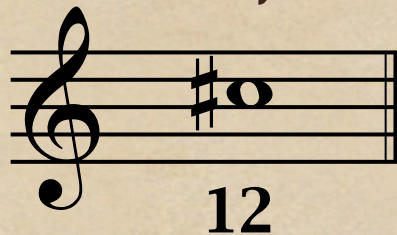
12 12 13

Detailed description: The image shows a musical score for two brass parts: 2 Bb Cor. (top staff) and Bb Tpts. (bottom staff). The music is in 2/4 time and consists of two measures. The first measure is marked 'OPEN' for both parts. The second measure is marked 'OPEN' for the Cor. and '1' for the Tpts. Annotations indicate that the 5th partials of the Cor. are flat and the 3rd partials of the Tpts. are sharp. Red numbers 12, 12, and 13 are written below the notes in the second measure.

Overtone Series

Pitch Tendencies (partials + valves)

Trumpet

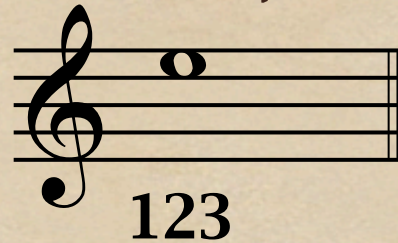


OPEN 2 1 12 or 3 23 13 123

Overtone Series

Pitch Tendencies (partials + valves)

Trumpet



7th Partial Usage

7, 14 = Very Flat

7th partial = very flat
 123 valve combo = v. sharp
 Overall pitch = ok

OPEN 2 1 12 or 3 23 13 123

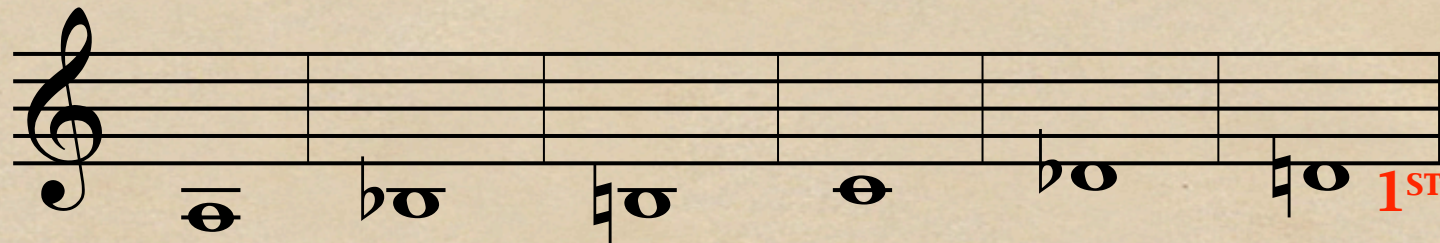
Cadenze!

Office Assistant Software

Overtone Series

RELATIONSHIP TO WOODWINDS

Chalumeau Fingerings



1ST PARTIAL



Clarion Fingerings

Musical notation on a treble clef staff showing six notes: C4, D4, E4, F4, G4, and A4. The notes are grouped into two parts: the top three notes (C4, D4, E4) are labeled "3RD PARTIAL" and the bottom three notes (F4, G4, A4) are labeled "1ST PARTIAL".

+ REGISTER KEY

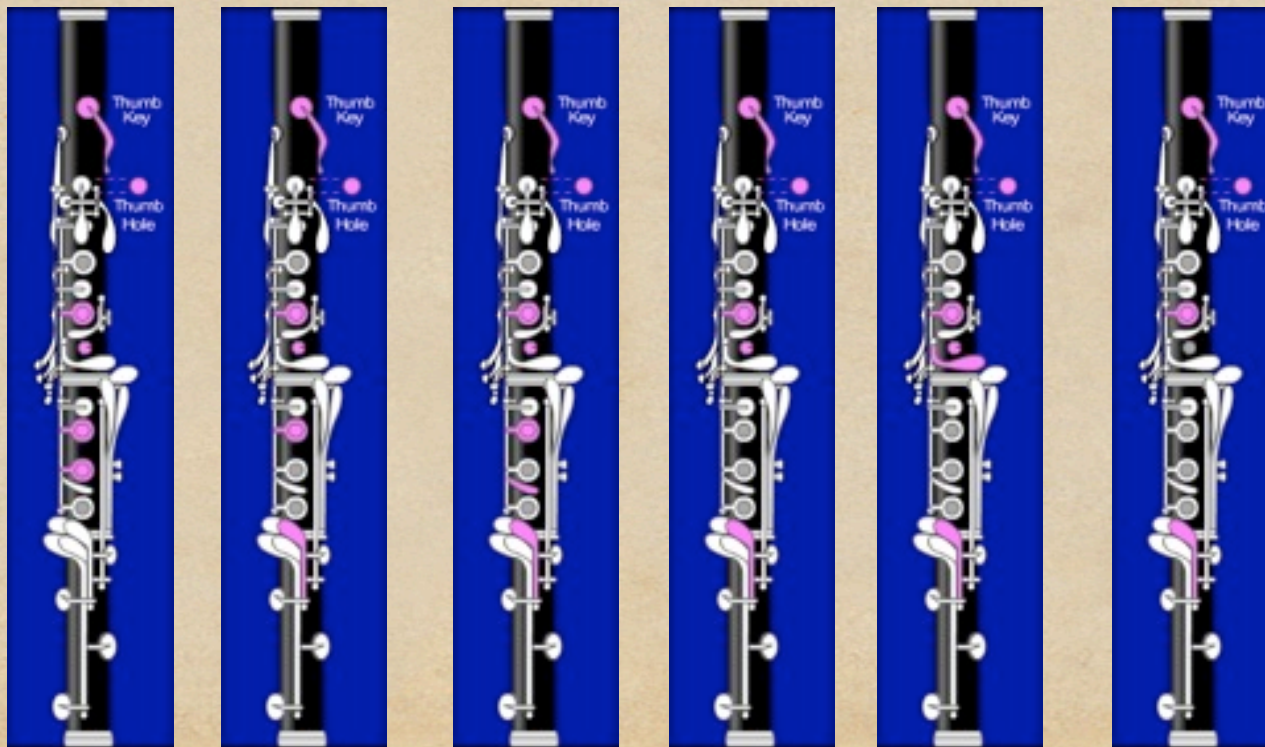


Altissimo Fingerings

A musical staff in treble clef showing six notes. Above the staff, notes are grouped into three pairs, each with a red label: "5TH PARTIAL", "3RD PARTIAL", and "1ST PARTIAL". The notes are: G#4 (5th partial), A4 (3rd partial), Bb4 (1st partial), C#5 (5th partial), D5 (3rd partial), and Eb5 (1st partial). Below the staff, the corresponding fingerings are indicated by notes with stems: G#4 (thumb hole), A4 (thumb hole), Bb4 (thumb hole), C#5 (thumb hole), D5 (thumb hole), and Eb5 (thumb hole).

+ REGISTER KEY

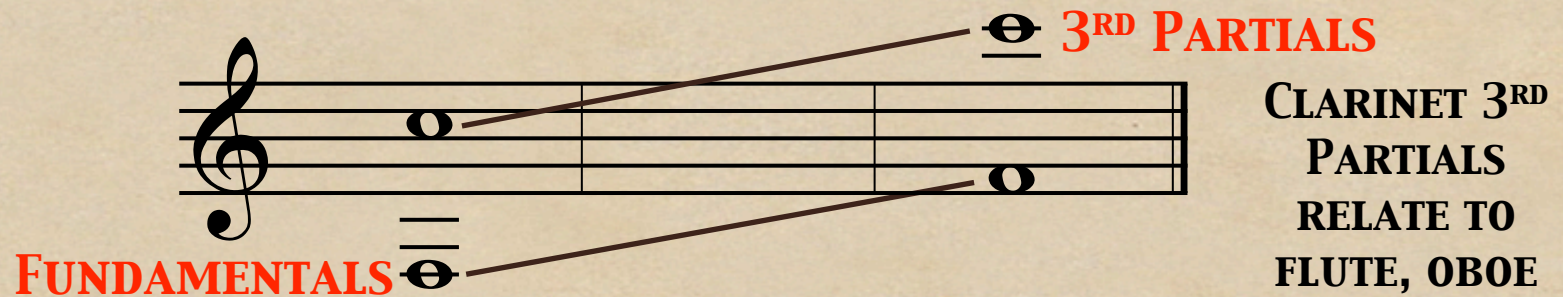
- 1ST FINGER



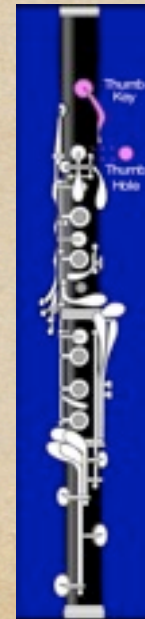
Overtone Series

Relationship to Woodwinds

(from clarinet)



**CLARINET
FUNDAMENTALS
RELATE TO
BASSOON
FINGERINGS**



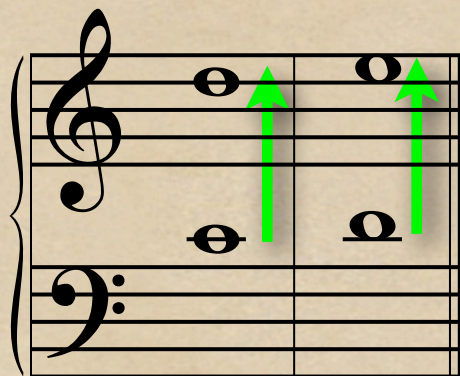
**CLARINET 3RD
PARTIALS
RELATE TO
FLUTE, OBOE
AND SAX
FINGERINGS**

Overtone Series

TRUMPET RELATED TO OTHER BRASS

Overtone Series

B.C. Baritone to Trumpet



1 OPEN

Go up Major 9th,
then think trumpet fingerings

Overtone Series

Tuba to Trumpet



Go up two Octaves + Major 2nd,
then think trumpet fingerings

Overtone Series

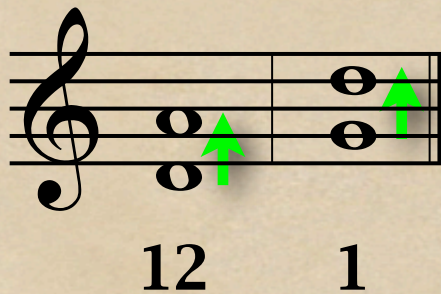
Horn (F side) to Trumpet



Go up Octave,
then think trumpet fingerings

Overtone Series

Horn (Bb side) to Trumpet



Go up perfect 5th,
then think trumpet fingerings

Overtone Series

Trombone & Trumpet Relationship

The image displays two musical staves illustrating the overtone series for Trombone and Trumpet. The Trombone staff is in the bass clef, and the Trumpet staff is in the treble clef. Both staves are in a key signature of one flat (B-flat major / F minor). The notes are half notes with stems pointing up.

Instrument	1st	2nd	3rd	4th	5th	6th	7th
Trombone	C2	C3	G2	C3	F2	C3	F2
Trumpet	C4	C5	B4	E5	D5	C5	B4

The Trumpet staff includes fingerings: 'open' for the first note, '2' for the second, '1' for the third, '12 or 3' for the fourth, '23' for the fifth, '13' for the sixth, and '123' for the seventh. The Trombone staff notes are labeled '1st' through '7th'.

Ultimate Pursuit

Online Testing Software

Brass Pitch Problems

Air for Band - 2 measures before letter E

3rd partials = #
valves = #
Overall pitch = #

Trumpet 1 & 2
Trumpet 3
Horn 1 & 2
Trombone 1 & 2
Trombone 3
Euphonium
Tuba

13
13

The image shows a musical score for a brass section. The instruments listed are Trumpet 1 & 2, Trumpet 3, Horn 1 & 2, Trombone 1 & 2, Trombone 3, Euphonium, and Tuba. The score is in 2/4 time with a key signature of one flat (Bb). The Horn 1 & 2 part is highlighted in yellow. Annotations include red triangles with a sharp sign (#) indicating pitch problems for the 3rd partials and valves, and green arrows pointing to specific notes in the Trumpet and Horn parts. The number '13' is written in red below the notes in the Trumpet parts.

Brass Pitch Problems

Air for Band - 2 measures before letter E

Horn (F side) to Trumpet

Go up octave,
then think trumpet fingering

Horn 1 & 2



The image shows a musical staff for Horn 1 & 2 in 2/4 time, with a key signature of two flats (B-flat and E-flat). The notation consists of two measures. The first measure contains a whole note chord with notes G2 (below the staff), B-flat2 (below the staff), and D3 (below the staff). The second measure contains a whole note chord with notes G2 (below the staff), B-flat2 (below the staff), and D3 (below the staff). A green arrow points upwards from the D3 note in the second measure, indicating a pitch problem where the note is too low and needs to be raised an octave to D4.

Brass Pitch Problems

Air for Band - 2 measures before letter E

Horn (F side) to Trumpet

Go up octave,
then think trumpet fingering

5th partials = flat

valves = ok

overall pitch = flat

Horn 1 & 2



Brass Pitch Problems

Air for Band - 2 measures before letter E

The image shows a musical score for a brass section. The instruments listed are Trumpet 1 & 2, Trumpet 3, Horn 1 & 2, Trombone 1 & 2, Trombone 3, Euphonium, and Tuba. The score is divided into two measures. Annotations include green arrows pointing to specific notes and text boxes indicating overall pitch adjustments: a red triangle with a sharp sign (#) for Trumpets 1 & 2 and 3, and a blue box with the word 'flat' for Horns 1 & 2. A yellow highlight is present on the Euphonium staff in the second measure.

Trumpet 1 & 2 Overall pitch = #

Trumpet 3 Overall pitch = #

Horn 1 & 2 Overall pitch = flat

Euphonium

Tuba

Brass Pitch Problems

Air for Band - 2 measures before letter E

B.C. Baritone to Trumpet

Go up M9th,
then think trumpet fingering

Euphonium



Brass Pitch Problems

Air for Band - 2 measures before letter E

B.C. Baritone to Trumpet

Go up M9th,
then think trumpet fingering

Trumpet

Euphonium

3rd partials = #
valves = #
overall pitch = #

13

Brass Pitch Problems

Air for Band - 2 measures before letter E

The image shows a musical score for a brass section. The instruments listed are Trumpet 1 & 2, Trumpet 3, Horn 1 & 2, Trombone 1 & 2, Trombone 3, Euphonium, and Tuba. The score is divided into two measures. The second measure is highlighted in yellow. Annotations include red triangles for sharp pitch, blue squares for flat pitch, and red numbers 13 and 1. Green arrows point from the annotations to the notes in the score.

Trumpet 1 & 2 Overall pitch = #

Trumpet 3 Overall pitch = #

Horn 1 & 2 Overall pitch = flat

Trombone 1 & 2

Trombone 3

Euphonium Overall pitch = #

Tuba

Brass Pitch Problems

Air for Band - 2 measures before letter E

Tuba to Trumpet

Go up two octaves + M2nd,
then think trumpet fingering

Tuba



Brass Pitch Problems

Air for Band - 2 measures before letter E

Tuba to Trumpet

Go up two octaves + M2nd,
then think trumpet fingering

Tuba



Brass Pitch Problems

Air for Band - 2 measures before letter E

Tuba to Trumpet

Go up two octaves + M2nd,
then think trumpet fingering

Trumpet

The image shows two musical staves. The top staff is labeled 'Trumpet' and is empty. The bottom staff is labeled 'Tuba' and contains a sequence of notes: G2, F2, E2, and D2. A yellow box highlights the D2 note, with a red '13' below it. A green arrow points from the D2 note up to the D4 note on the Trumpet staff.

Tuba

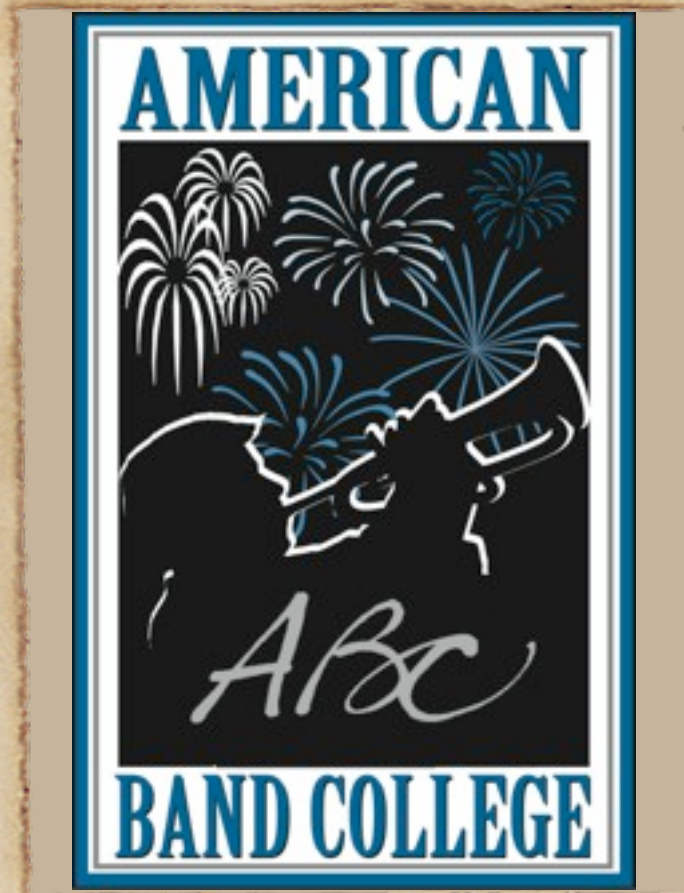
3rd partials = #
valves = #
overall pitch = #

Partial to the Winds

The Power of the
Overtone Series

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Get more info at www.bandworld.org