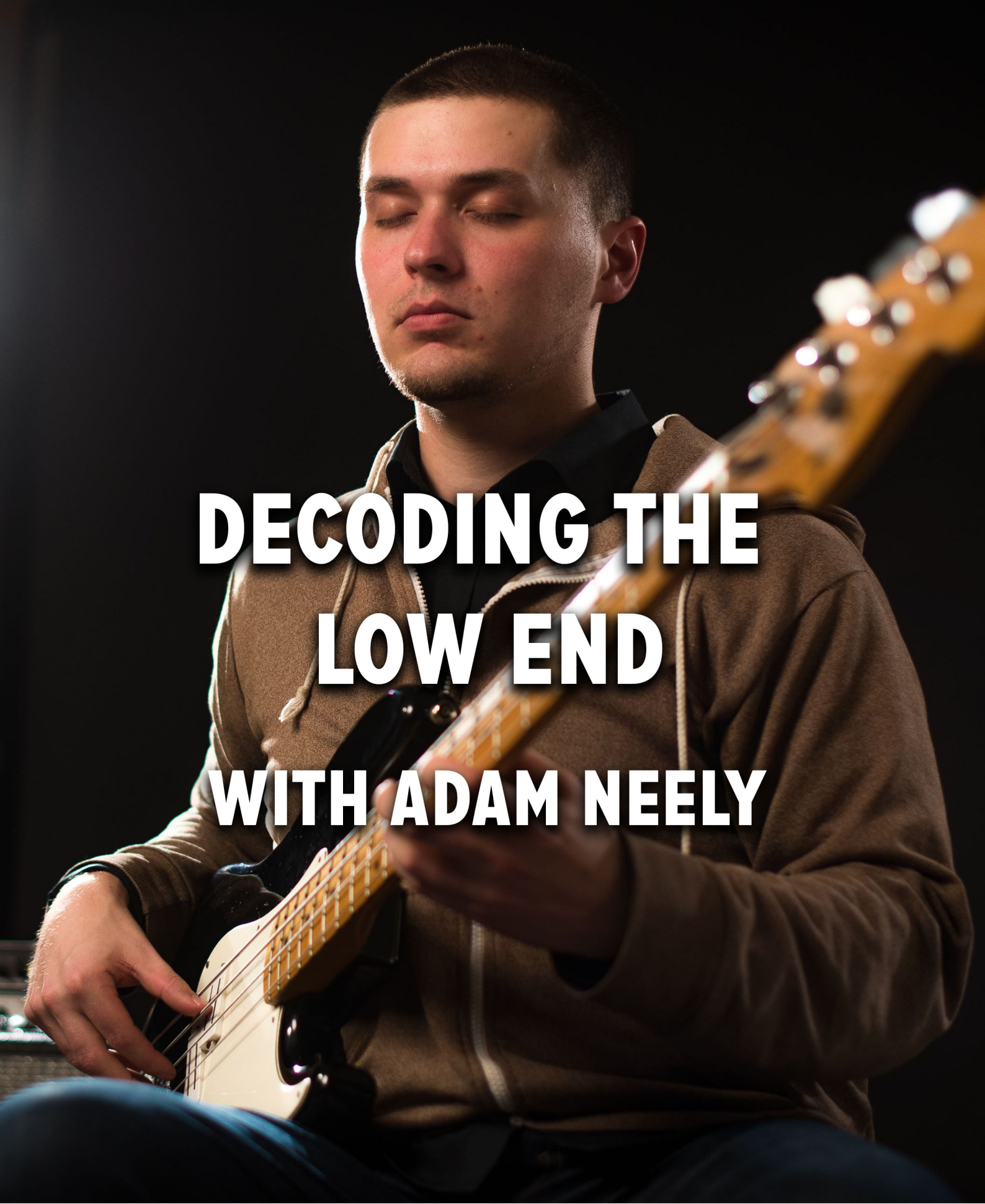


A close-up, medium shot of a young man with short brown hair and a light beard, wearing a brown hoodie over a dark shirt. He is sitting and playing a white Fender Precision Bass guitar. His eyes are closed, and he has a focused expression. The background is dark and out of focus, with some bokeh light spots. The text is overlaid in the center of the image.

DECODING THE LOW END WITH ADAM NEELY



SCOTT'S
BASS LESSONS





DECODING THE LOW END - ADAM NEELY

LESSON 1: 'ETHER' PERFORMANCE AND TALK THROUGH

7:12 Mission Impossible (5/4 Clave)

TAB

7 7 5 7 7 7 5 6

9:37 4 On The Floor Walking

6 5 8 7 6 5 6 7 8 6 5 8 6 5 8 5 8

10:42 5 On The Floor

7 7 7 7 7

11:48 Moving The Downbeat

The image shows a musical exercise for bass guitar. It consists of two measures of music. The first measure starts with a double bar line, followed by a key signature of one sharp (F#) and a 7/8 time signature. The melody in the first measure is: F#4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter). The bass line in the first measure is: F#2 (half), G2 (half), A2 (half), B2 (half), C3 (half), B2 (half), A2 (half), G2 (half), F#2 (half). The second measure starts with a key signature change to one sharp (F#) and a 7/8 time signature. The melody in the second measure is: F#4 (quarter), G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter). The bass line in the second measure is: F#2 (half), G2 (half), A2 (half), B2 (half), C3 (half), B2 (half), A2 (half), G2 (half), F#2 (half). The exercise is titled 'Moving The Downbeat' and is located at 11:48.



DECODING THE LOW END -

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LESSON 2: QUINTUPLET SWING

5:19 Basic Swing Line

Basic Swing Line exercise in bass clef, key of D major (two sharps), 4/4 time. The exercise consists of two staves. The top staff contains a melodic line with eighth notes and triplet markings. The bottom staff contains a bass line with eighth notes and triplet markings. The exercise is marked with a repeat sign at the end.

6:33 Quintuplet Swing

Quintuplet Swing exercise in bass clef, key of D major (two sharps), 4/4 time. The exercise consists of two staves. The top staff contains a melodic line with eighth notes and quintuplet markings. The bottom staff contains a bass line with eighth notes and quintuplet markings. The exercise is marked with a repeat sign at the end.

5/8 Vocabulary Building Sheet

1 Attack Per Measure



2 Attacks Per Measure



3 Attacks Per Measure



4 Attacks Per Measure



5 Attacks Per Measure





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LESSON 3: CHASING THE CLICK

Want You To Want Me (Rearrangement)

♩ = 123

7

T
A
B

10 8 10 12 8 10

6 8 8 6 8 6 4 1 3 0 3

1 4 2 2 2 3 4

First system of bass guitar notation. The treble staff contains two measures of music. The first measure has a quarter rest followed by an eighth note G4, an eighth note A4, and a quarter note B4. The second measure has a quarter rest followed by an eighth note G4, an eighth note F#4, a quarter note E4, and an eighth note D4. The bass staff contains two measures of fingerings: the first measure has triplets of 3 and 1, and the second measure has 1, 1, 1, 1, 1, 1, 1, 1.

Second system of bass guitar notation. The treble staff contains two measures of music. The first measure has an eighth note G4, an eighth note A4, a quarter note B4, an eighth note G4, an eighth note F#4, and a quarter note E4. The second measure has a quarter rest followed by an eighth note G4, an eighth note F#4, a quarter note E4, and an eighth note D4. The bass staff contains two measures of fingerings: the first measure has 1, 1, 1, 4, 4, 4, and the second measure has 4, 4, 4, 4, 4, 4, 4, 4.

Third system of bass guitar notation. The treble staff contains two measures of music. The first measure has an eighth note G4, an eighth note A4, a quarter note B4, an eighth note G4, an eighth note F#4, and a quarter note E4. The second measure has a quarter rest followed by an eighth note G4, an eighth note F#4, a quarter note E4, and an eighth note D4. The bass staff contains two measures of fingerings: the first measure has 3, 3, 3, 1, 1, 1, 1, 1, 1, and the second measure has 6, 6, 6, 4, 4, 4, 4, 4.

Fourth system of bass guitar notation. The treble staff contains two measures of music. The first measure has a half note G4 and a half note A4. The second measure has a half note B4 and a half note A4. The bass staff contains two measures of fingerings: the first measure has 6, 6, 4, and the second measure has 8, 5, 8, 5, 8, 8, 8, 6, 6, 6.

Exercise 1: 8-note scale in B-flat major, measures 1-2. The first measure contains notes B-flat, C, D, E-flat, F, G, A, and B-flat. The second measure contains notes C, D, E-flat, F, G, A, B-flat, and C. The fret numbers for the first measure are 6, 8, 8, 8, 8, 8, and for the second measure are 8, 8, 8, 8, 6, 6, 6.

Exercise 2: 8-note scale in B-flat major, measures 3-4. The third measure contains notes B-flat, C, D, E-flat, F, G, A, and B-flat. The fourth measure contains notes C, D, E-flat, F, G, A, B-flat, and C. The fret numbers for the third measure are 6, 0, 1, 3, 4, and for the fourth measure are 4, 4, 4, 0, 0, 0.

Exercise 3: 8-note scale in B-flat major, measures 5-6. The fifth measure contains notes B-flat, C, D, E-flat, F, G, A, and B-flat. The sixth measure contains notes C, D, E-flat, F, G, A, B-flat, and C. The fret numbers for the fifth measure are 0, 1, 1, 2, 2, 2, and for the sixth measure are 8, 8, 8, 3, 3, 3.

Exercise 4: 8-note scale in B-flat major, measures 7-9. The seventh measure contains notes B-flat, C, D, E-flat, F, G, A, and B-flat. The eighth measure contains notes C, D, E-flat, F, G, A, B-flat, and C. The ninth measure contains notes B-flat, C, D, E-flat, F, G, A, and B-flat. The fret numbers for the seventh measure are 8, 8, 8, 10, 10, 10, for the eighth measure are 3, 3, 3, 3, 3, 3, and for the ninth measure are 8, 8, 8, 10, 10, 10.

First system of bass guitar notation. The staff is in bass clef with a key signature of two flats (Bb, Eb). The first measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The second measure contains a quarter note D2, a quarter note Eb2, a quarter note E2, and a quarter note F2. The third measure contains a quarter rest, a quarter note G2, a quarter note Ab2, and a quarter note Bb2. The fret numbers below the staff are: 3 3 3 3 3 3 for the first measure, 8 8 8 10 10 10 for the second measure, and 9 10 9 for the third measure.

Second system of bass guitar notation. The staff is in bass clef with a key signature of two flats (Bb, Eb). The first measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The second measure contains a quarter note D2, a quarter note Eb2, a quarter note E2, and a quarter note F2. The third measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The fret numbers below the staff are: 8 12 11 10 9 8 for the first measure, 7 6 6 6 5 8 10 for the second measure, and 10 8 9 9 11 13 13 8 6 for the third measure.

Third system of bass guitar notation. The staff is in bass clef with a key signature of two flats (Bb, Eb). The first measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The second measure contains a quarter note D2, a quarter note Eb2, a quarter note E2, and a quarter note F2. The third measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The fret numbers below the staff are: 3 2 5 5 1 for the first measure, 3 6 for the second measure, and 3 4 for the third measure.

Fourth system of bass guitar notation. The staff is in bass clef with a key signature of two flats (Bb, Eb). The first measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The second measure contains a quarter note D2, a quarter note Eb2, a quarter note E2, and a quarter note F2. The third measure contains a quarter note G2, a quarter note Ab2, a quarter note Bb2, and a quarter note C3. The fret numbers below the staff are: 6 4 3 2 for the first measure, 3 6 for the second measure, and 6 8 8 8 8 8 for the third measure.

First system of bass guitar notation. The staff is in bass clef with a key signature of two flats (Bb, Eb) and a 4/4 time signature. The first measure contains a quarter note Bb, an eighth rest, a quarter note D, a quarter note E, a quarter note F, and a quarter note G. The second measure contains a quarter note A, a quarter note Bb, a quarter note C, and a quarter note D. The fret numbers below the staff are 8, 8, 8, 8, 6, 6, 6 for the first measure and 6, 0, 1, 3, 4 for the second measure.

Second system of bass guitar notation. The staff continues the melody from the first system. The first measure contains a quarter note E, a quarter note F, a quarter note G, and a quarter note A. The second measure contains a quarter note Bb, a quarter note C, a quarter note D, and a quarter note E. The fret numbers below the staff are 4, 4, 4, 0, 0, 0 for the first measure and 0, 1, 1, 2, 2, 2 for the second measure.

Third system of bass guitar notation. The staff continues the melody. The first measure contains a quarter note F, a quarter note G, a quarter note A, and a quarter note Bb. The second measure contains a quarter note C, a quarter note D, a quarter note E, and a quarter note F. The fret numbers below the staff are 8, 8, 8, 3, 3, 3 for the first measure and 8, 8, 8, 10, 10, 10 for the second measure.

Fourth system of bass guitar notation. The staff continues the melody. The first measure contains a quarter note G, a quarter note A, a quarter note Bb, and a quarter note C. The second measure contains a quarter note D, a quarter note E, a quarter note F, and a quarter note G. The fret numbers below the staff are 3, 3, 3, 3, 3, 3 for the first measure and 8, 8, 8, 10, 10, 10 for the second measure.

8 8 8 10 10 10

7/10 8/6 10/8 12/10

17/17/16 0

12/11 10/9

7/10 8/6

10/8 13/13

14/12 16/13

18/18 9/10

4 4 4

2 2 2

2 2 2 2 2 2 2

2

2 2 2

5 5 5

5 5 5 5 5 5 5 4 4 4 2 2 2 2 2 2

2 2 2 5 5 5 5 2 2 2 2 2 2 2 2 2 2 2 2

8 5 8 5 8 8 8 6 6 6 6 8 8 8 8 8

8 8 8 8 6 6 6 6 0 1 3 4

First system of bass guitar notation. The staff is in bass clef with a key signature of two flats (Bb, Eb) and a 4/4 time signature. The music consists of three measures. The first measure contains a quarter note on G2, an eighth note on F2, a quarter note on E2, and a quarter note on D2. The second measure contains a quarter note on C2, a quarter note on B1, a quarter note on A1, and a quarter note on G1. The third measure contains a quarter note on F1, a quarter note on E1, a quarter note on D1, and a quarter note on C1. The fret numbers below the staff are: 4 4 4 0 0 0 | 0 1 1 2 2 2 | 8 8 8 3 3 3.

Second system of bass guitar notation. The staff continues from the first system. The first measure contains a quarter note on B1, a quarter note on A1, a quarter note on G1, and a quarter note on F1. The second measure contains a quarter note on E1, a quarter note on D1, a quarter note on C1, and a quarter note on B1. The third measure contains a quarter note on A1, a quarter note on G1, a quarter note on F1, and a quarter note on E1. The fret numbers below the staff are: 8 8 8 10 10 10 | 3 3 3 3 3 3 | 8 8 8 10 10 10.

Third system of bass guitar notation. The staff continues from the second system. The first measure contains a quarter note on D2, a quarter note on C2, a quarter note on B1, and a quarter note on A1. The second measure contains a quarter note on G1, a quarter note on F1, a quarter note on E1, and a quarter note on D1. The third measure contains a quarter note on C1, a quarter note on B1, a quarter note on A1, and a quarter note on G1. The fret numbers below the staff are: 3 3 3 3 3 | 12 | 15 17 12 15 13 15 13 13 13 15 13 15 13.

Fourth system of bass guitar notation. The staff continues from the third system. The first measure contains a quarter note on F1, a quarter note on E1, a quarter note on D1, and a quarter note on C1. The second measure contains a quarter note on B1, a quarter note on A1, a quarter note on G1, and a quarter note on F1. The third measure contains a quarter note on E1, a quarter note on D1, a quarter note on C1, and a quarter note on B1. The fret numbers below the staff are: 3 3 3 3 3 3 | 8 8 8 10 10 10 | 3 3 3 3 3 3.





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LESSON 4: PHONOMETRICS & THE STUDY OF HARMONICS PART 1

7:05 Harmonic Series From An Open A String

T A B	0	(12)	(7)	(5)	(4)
Open A = 55hz	Divide String Into 2 Parts: 55 x 2 = 110hz	Divide String Into 3 Parts: 55 x 3 = 165hz	Divide String Into 4 Parts: 55 x 4 = 220hz	Divide String Into 5 Parts: 55 x 5 = 275hz	
	A + Octave	Perfect 5th (+1 Octave)	A + 2 Octaves	Major 3rd (+2 Octaves)	

LESSON 5: PHONOMETRICS & THE STUDY OF HARMONICS PART 2

In this lesson, Adam demonstrates how the human ear can decode a fundamental pitch from hearing only the upper harmonics. Studio engineers can use High Pass Filters on bass, set to 75hz, safe in the knowledge that the fundamental notes are unnecessary in an overall mix.

This is important for bass players to understand because, in order to cut through in a live mix, the low mids between 100 and 300hz are much more useful than the fundamental lows.



DECODING THE LOW END - ADAM NEELY

LESSON 6: THE ILLUSION OF THE INSTRUMENT

In this lesson, Adam demonstrates how pitch and rhythm are essentially the same. Pitch is measured in vibrations per second (hz). Therefore, by increasing the tempo of a simple clap or drum strike, we will eventually perceive those percussive beats as pitch.

As demonstrated in the harmonics lesson, intervals measured from a fundamental note may be expressed as simple ratio values:

Interval Ratios:

Unison - 1:1	Major 2nd - 9:8	Major 3rd - 5:4	Perfect 4th - 4:3

Perfect 5th - 3:2	Major 6th - 5:3	Major 7th - 15:8	Perfect Octave - 2:1

By combining the concept of pitch-as-as-rhythm and the intervallic ratios, we can express musical intervals as polyrhythms:

Major 2nd - 9:8 (Nonuplets) Major 3rd - 5:4 (Quintuplets) Perfect 4th - 4:3 (4 in 3)

Perfect 5th - 3:2 (Triplet) Major 6th - 5:3 (5 in 3) Major 7th - 15:8 (15-tuplet)

The image displays six musical examples on a single staff in bass clef. Each example consists of two parallel rhythmic lines. The first line represents the upper note of the interval, and the second line represents the lower note. The number of notes in each line is determined by the interval's ratio. For example, a Major 2nd (9:8) is shown with 9 notes in the upper line and 8 in the lower line. The examples are: Major 2nd (9:8, Nonuplets), Major 3rd (5:4, Quintuplets), Perfect 4th (4:3, 4 in 3), Perfect 5th (3:2, Triplet), Major 6th (5:3, 5 in 3), and Major 7th (15:8, 15-tuplet). The time signatures are 2/4, 3/4, and 4/4 respectively for the first three and last three examples.

This principle allows for the expression of any chord or combination of tones by use of layered polyrhythms

However, these specified polyrhythms will only produce notes based on simple ratios (Just Intonation). This creates problems when moving key or creating intervals from notes other than the fundamental tonic of a key. The interval of a 5th measured from the 2nd to the 6th will sound out of tune (or at least different to the 5th from the 1st to the 5th).

Equal Temperament remedies this problem by using a logarithmic tuning system. Using this method, the pitch ratio between any two adjacent half steps is the twelfth root of two. This would not be possible to express as a polyrhythm like the previous examples.

Equal Temperament allows for an 'equal' division of the octave into 12 half steps thus facilitating the use of all 12 keys.



DECODING THE LOW END -

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LESSON 7: METRIC MODULATION

Division of Pitch Frequency

Octaves of pitch are measured by doubling or halving the frequency value. The pitch A is generally measured from a reference point of 440hz. So by calculating the consecutive halving of that frequency we discover the following lower pitches of A:

440 - 220 - 110 - 55 - 27.5 - 13.75 - 6.875 - 3.4375 - 1.71875

Therefore, we know that 1.71875hz is an A.

Hertz are a measurement of vibrations per second. So if we multiply this number by 60 we find the measurement in terms of beats per minute. $1.71875 \times 60 = 103.125$.

Therefore, the pitch A could be considered a 'tempo' of 103bpm

By measuring the 'tempo' of each musical pitch it's possible to use metric modulation (layering and moving between simultaneous tempi) as an expression of musical intervals and harmony.

Multiplication of Pitch Frequency

The octaves of pitch can also be extrapolated through doubling. Applied to A we find the following:

440 - 880 - 1760 - 3520 - 7040 - 14,080 - 28,160 etc.

This calculation can be continued into trillions of hertz (tetrahertz). This is the frequency range of light and color.

By applying this calculation to every note of the chromatic scale we find a set of colors spanning the visible light spectrum from F to F (an octave). This color chart is included in the workbook.

Again, just as we can compare the consonant and dissonant aspects of harmony to rhythm in the shape of polyrhythms and metric modulation. We can also apply these same principles to the world around us and the visual arts by way of color.

The Color of Sound

Sound	Frequency (Hz)	349.2	370.0	392.0	415.3	440.0	466.2	493.9	523.2	554.4	587.3	622.2	659.3	698.5	
	Wavelength (cm)	98.88	93.33	88.09	83.15	78.48	74.07	69.92	65.99	62.29	58.79	55.49	52.38	49.44	
		F ₄	F [♯] G _♭	G ₄	G [♯] A _♭	A ₄	A [♯] B _♭	B ₄	C ₅	C [♯] D _♭	D ₅	D [♯] E _♭	E ₅	F ₅	F ₄₊₅ **
															
Light	Frequency (THz)	384.0	406.8	431.0	456.6	483.8	512.5	543.0	575.3	609.5	645.8	684.2	724.9	768.0	
	Wavelength (nm)	780.8	736.9	695.6	656.5	619.7	584.9	552.1	521.1	491.8	464.2	438.2	413.6	390.4	
RGB	Dec/Hex	Red 82/52	116/74	179/b3	238/ee	255/ff	255/ff	153/99	40/28	0/00	0/00	5/05	69/45	87/57	85/55
	Green	0/00	0/00	0/00	0/00	99/63	236/ec	255/ff	255/ff	255/ff	124/7c	0/00	0/00	0/00	0/00
	Blue	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	232/e8	255/ff	255/ff	234/ea	158/9e	79/4f
CMY	Dec	Cyan 173	139	76	17	0	0	102	215	255	255	250	186	168	170
	Magenta	255	255	255	255	156	19	0	0	0	131	255	255	255	255
	Yellow	255	255	255	255	255	255	255	255	23	0	0	21	97	176
CMYK	Dec%	Cyan 53	40	11	1	0	3	54	80	69	98	99	99	92	73
	Magenta	98	100	100	100	82	8	0	0	0	64	96	95	94	100
	Yellow	96	98	96	95	96	94	98	100	42	0	0	0	0	20
	Black	11	3	0	0	0	0	0	0	0	0	0	0	0	2
HSB (HSV)	Degrees	Hue 0	0	0	0	23	56	84	111	175	211	241	258	273	304
	Dec%	Sat. 100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Brightness	32	45	70	93	100	100	100	100	100	100	100	92	62	33
YIQ (NTSC)	Dec	Luma 25	35	54	71	134	215	195	162	176	102	31	47	44	34
	In-phase	124	135	153	171	162	144	111	77	28	42	60	83	100	113
	Quadrature	109	112	119	125	101	65	49	38	70	107	140	144	134	121

**The F₄₊₅ column provides a combination of the F₄ and F₅ colors.
This is useful when a cyclic display of colors is needed, to avoid a jump in color between F and F#.

This chart was developed by Nicolas Melendez and Clint Goss.
See www.Flutopedia.com/sound_color.htm for more info. Updated: August 20, 2016