

MUSIC BY THE NUMBERS

THE BEAT OF LIFE

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MEET THE BEAT

The beat - a repeating pulse or wave or throb or thump – a pattern of aural or visual events that catch our attention by virtue of standing out from among all the rest of the random events.

It might be the rise and fall of the sun or moon, the relentless surge of the waves, or the predictable variedness of the tides. It may be the quiet pumping of that most critical beat that begins with our first breath and ends with our last – the heart.

It may be the gentle brushing of your hair, the scrubbing of your toothbrush before bed, and the slow rhythms of your yawns and stretches as you awaken each morning. It may be the bounce of a ball, the slap of a jump rope, the thud of your feet when you walk or run, the soft whirring cycle of your bike pedals. It is all the beats that surround us every minute of our lives.

We humans have used the beat for as long as we have had an awareness of one another. We may first have noticed the sound of a tree being hacked down, or a log being hewn into a useful length, or rocks being banged to spark fire. We perhaps noticed the twang of the bowstring when the arrow flew to bring down supper for the family. We dried the skins from those kills and stretched them over that hollow log and pounded on them. The bowman maybe began to twang along with the pulse of the drumming. And the beat of that drum and twang made us smile and dance, and we discovered we could use the power of that sound to send messages to other families across the river or down the mountain.

Those beats informed our lives and the development of our civilization both as celebration, entertainment, and communication. By the time we had learned to write our thoughts and stories and records down, the beats were being written down as well. Songs and dances were being stored and traded and shared through rough and primitive symbols just as the crude marks that became words and sentences helped us build cultures of the peoples around the world.

An examination of the history of music and its place in our culture reveals the incredible attention paid to the beat of world rhythm and song as civilization grew. Some of the earliest records of formalized music reach back to ---. And the same elements that made the songs of that era make the booming, beat-box sounds coming from that car sitting beside you at the traffic light.

Somewhere along the way – mostly within the last 100 years – we became very sophisticated in recognizing and working with the beats around us. Listen for the cross phase beats that come from two big diesel motors idling at the rest area, ...

COUNTING THE BEAT

OK, say this out loud:

1 2 3 4 | 1 2 3 4 |

1 2 3 4 | 1 2 3 4 |

Now say it faster. Now slower. What you are doing is setting up a pattern of beats. Let's call them the main beats of a four-beat pattern or group.

Now say it again, this time giving a little bit of emphasis or accent to each number one.

Now let's leave out the numbers and just tap the beats, giving the same little accent to the one. But don't forget to keep track of the numbers because they guide your accented beats. Give it a try. Now faster, now slower.

WE SUBDIVIDE THE BEAT

By itself, the beat is a bit monotonous, boring, repetitive. We need more interesting rhythms to create song and dance. So we began to add other beats in and around and between the main beat. We combined these variations and patterns to build evermore exciting and challenging sounds.

So, say this for me again:

1 2 3 4 1 2 3 4

1 2 3 4 1 2 3 4

Now, say the word "and" at the exact point between each number. If you are clapping the beat, you would say your "and" at the exact point where your hands reach the farthest swing out before they head back to clap again.

1 & 2 & 3 & 4 & | 1 & 2 & 3 & 4 &

Now, count the beat silently in your mind and clap once for each number. Then try again, clapping both the numbers and the "and"s. You have just subdivided the beat into twice as many sounds.

HOW MANY BEATS IN THE BEAT GROUP?

We use a vertical line to show the end of a beat group: |

1 2 3 4 | 1 2 3 4 |

1 2 3 4 | 1 2 3 4 |

However, not every song uses a four-beat group. Sometimes we only use three beats in a group, sometimes only two, sometimes five or six or eight. It's up to the composer or songwriter. Let's look at a three-beat group.

Say this for me:

1 2 3 | 1 2 3 |

1 2 3 | 1 2 3 |

Now say it faster. Now slower. These are the main beats of a three-beat pattern or group.

Now again, give a little bit of emphasis or accent to each number one.

Now leave out the numbers and just tap the beats. Don't forget to give the same little accent to the one. Keep track of the numbers because they guide your accented beats.

AND THEN CAME THE SONG

Someone once said singing is just controlled talking. We all began to make vocal sounds with our first breath because the very next thing we did was to let out a wail and cry of joy or protest at emerging from the quiet darkness of the womb into the bright noisy light of day. When the strangeness of the air strikes our lungs and nose, we set loose the vibrations in our throat and chest that will largely guide our passage through this life experience.

The first songs were probably cries of joy or sorrow as the world took its toll. Those shouts and lamentations caught the ears of our neighbors and they joined in. Sometimes the sounds were so good and ear-catching that we remembered them and used them again the next time we had occasion to do so.

The best of the best became standards in the tribe and village. Songs of birth and death and feast and famine entered the shared repertoire and became tradition.

PITCH BY THE NUMBERS

Sing any tone – high or low. Your sound has a number. Analyzing the number of vibrations per second your vocal cords are making can identify this "pitch" or "tone." This is also sometimes called the frequency of your sound. The higher the tone, the faster your cords vibrate. The lower the tone, the slower your cords vibrate. Every sound can be given a pitch name by counting the speed, or frequency, of the vibrations.

MELODY BY THE NUMBERS

Choose a tone toward the lower part of your vocal range. Sing the number "1" on that tone. Now continue to sing a musical scale. Usually we use the Italian syllables Do, Re, Mi, Fa, So, La, Ti, Do.

But this time, just number those tones. It will still sound like Do, Re, Mi, but number them 1-8.

1 2 3 4 5 6 7 8

And then go backwards.

8 7 6 5 4 3 2 1

You have just sung a major diatonic scale. Now melodies can be built by choosing those numbers and pitches. For instance, sing:

1 1 5 5 6 6 5

Do you recognize that song beginning? Try adding:

1 1 5 5 6 6 5

4 4 3 3 2 2 1

HARMONY IS NUMBERS ON NUMBERS ON NUMBERS

Melody consists of a flow of single pitches along a rhythmic pattern line. It is the heart of the song – the tune to which we dance or weep or shout.

But in all but the most basic of songs there is a foundation of other multiple pitches that carry that melody along. It's the river on which the tune floats.

Multiple tones sounded together make up harmony. Harmonies may be sonant or dissonant – they sound pleasing together or they sound unpleasant and jarring. Depending on the style of music you are practicing either may work well.

These clusters of pitch are called chords and they get numbered based on where they are based within the musical scale.

A combination of the 1, 3, and 5 tones in a scale (a triad – three tones) is called a I chord. We use Roman Numerals to indicate a chord as opposed to a pitch or beat or fingering number.

A combination of the 2, 4, and 6 tones is called a II chord because it is based on the 2nd tone in the scale. The 3, 5, and 7 create a III chord. The 4, 6, and 8 make a IV chord, and so on up the tones of the scale.

The tones in a triad are not rigidly locked into place on the keyboard. They may appear in different octaves and still make up the same chord.

Here's an exercise you can try with two other singers:

Sing these pitches simultaneously.

High Voice 5 5 5 | 6 6 6 | 5 5 5 | 5 5 5

Mid Voice 3 3 3 | 4 4 4 | 4 4 4 | 3 3 3

Low Voice 1 1 1 | 1 1 1 | -7 -7 -7 | 1 1 1

I Chord IV Chord V Chord I Chord

You have just sung a I IV V chord progression in 3-part harmony.