Music Theory

IMPACT PERCUSSION

COREY PEARCE
percussion

A Word on Language

Written language is a key part of human society. It allows us to communicate ideas between ourselves using a system of signs and symbols that can be strung together to create all sorts of different meanings.

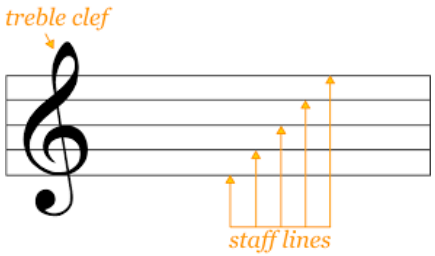
In the same way, music notation is the system of characters and signs that allows us to communicate musical ideas between ourselves. It gives us information about how loud or quiet a specific phrase is, how many notes need to fit into a certain amount of space, how fast or slow we should perform a piece, and much more.

Just like you need to have a certain degree of reading comprehension before you can read a chunk of text, you'll need to develop an understanding of music notation before you can read and execute the information in a piece of sheet music.

The Staff

When writing something like an essay, we have lines on our notebook paper or invisible guides on our computer's word processing apps that help us group our letters into words and our words into sentences in a neat and orderly fashion.

In the context of sheet music, a staff is what provides the guides we use to put down our notes and markings in an orderly way, and they're traditionally drawn as a set of 5 lines and 4 spaces.
The verticality of the 5 lines and spaces normally serves to provide information about pitch for instruments that can create multiple pitches, such as a trumpet or piano.



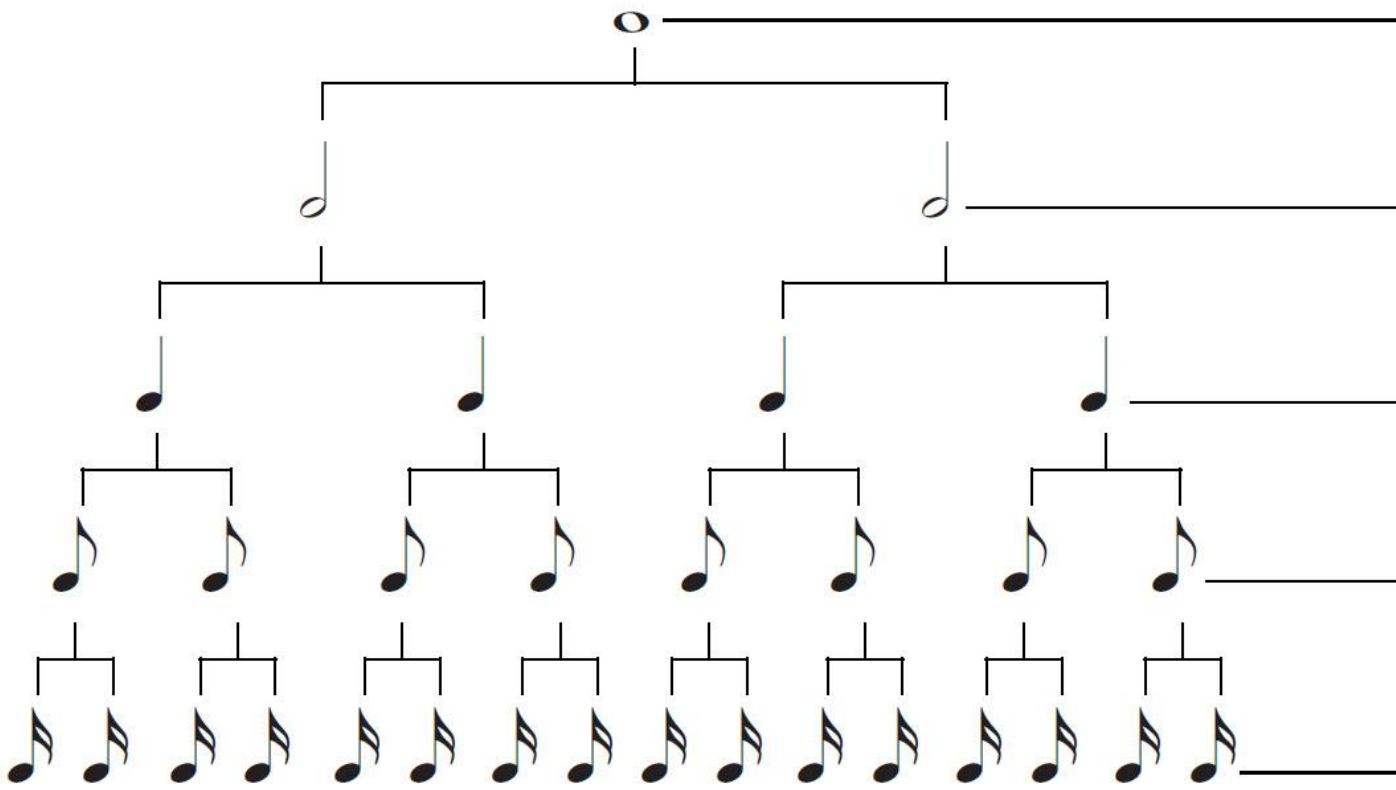
Sometimes you will find that percussion music is written on only one line, however, we'll be building a strong RHYTHMIC foundation first before bringing pitch into the equation. This will allow you to focus in and develop one fundamental skill at a time, and it will allow us to keep things simple and reduce our own staff down to only 1 line.

The Rhythmic Hierarchy

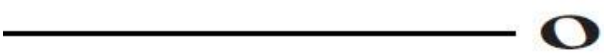
If a staff holds the lines we write music onto, then the Rhythmic Hierarchy of Note Values and Rests are the alphabets that we use to communicate information about when we play, the length of every note we play, where the silences and pauses in our music happen, and how long those silences last. By stringing together, the symbols from these hierarchies, we can create endless combinations of rhythms that can be simple or complex.

Just like you must understand the alphabet before you can start writing words, we'll first take some time to figure out what all of these different markings actually mean. Take a brief look at the chart on the next page and then proceed to the page after that for an in-depth explanation.

THE RHYTHMIC HIERARCHY
-NOTE VALUES–



NOTE VALUE ANATOMY

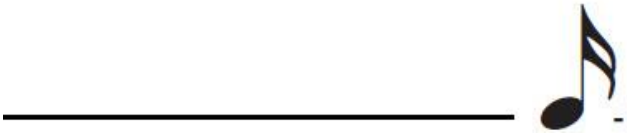


- Whole Note - Hollow note head, no stems, no flags

- Half Note - Hollow note head, stem, no flags

- Quarter Note - Filled note head, stem, no flags

- Eighth Note - Filled note head, stem, one flag



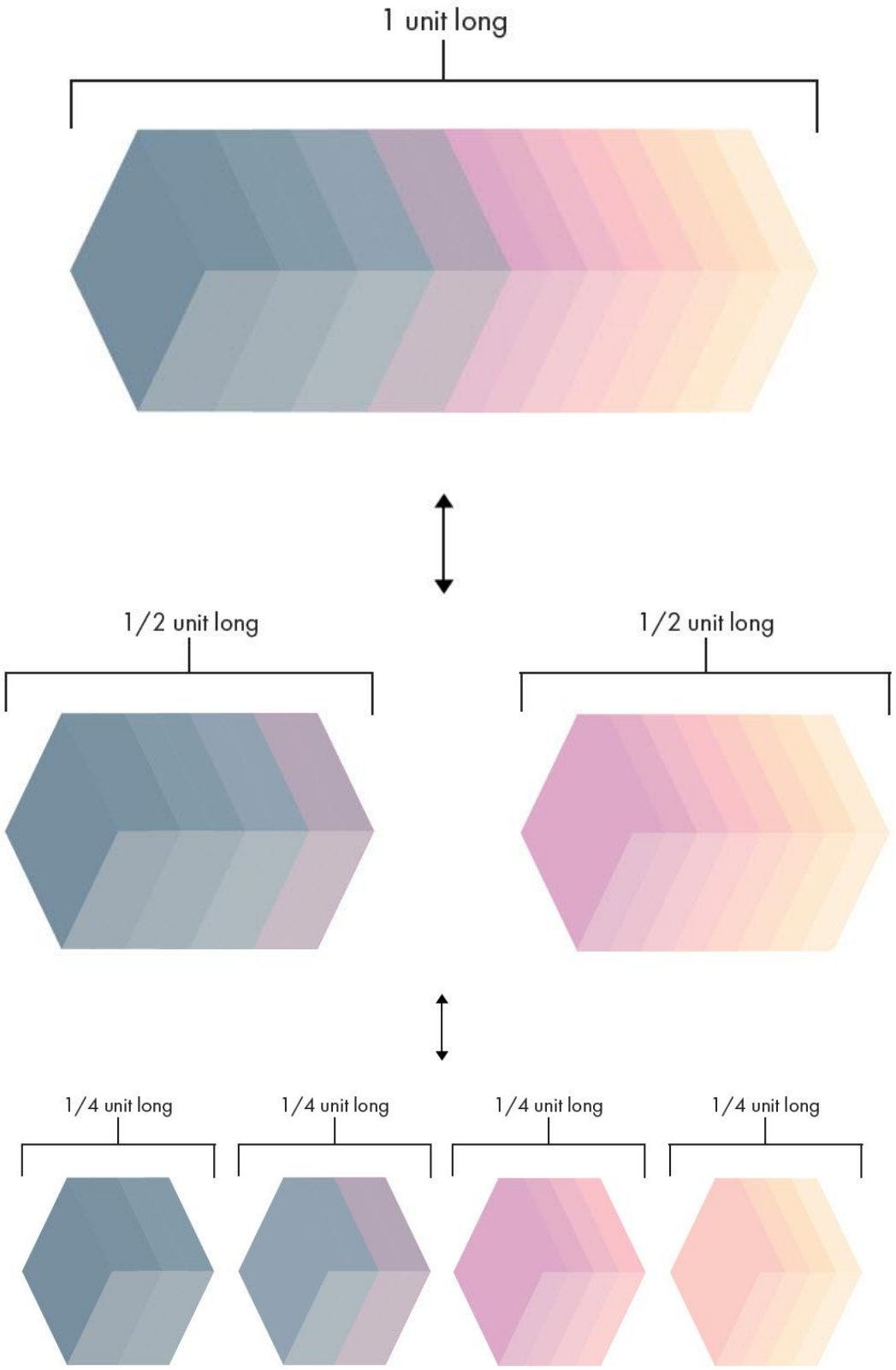
- Sixteenth Note - Filled note head, stem, two flags

If you look towards the very top of the chart, you'll see a note shaped very similarly to an "o". This note is called a whole note, and it sits at the very top of the hierarchy because it holds the longest duration of any note in the chart. Every other note type below it is named based on its binary relationship to the whole note. Let's unpack what this means with some visuals.

Imagine a block of a certain length; we'll call that length 1 unit long. Let's say we want to divide this block into 2 pieces that are as equal as possible. The solution is simple; you would simply make a cut exactly down the middle of the block. This creates 2 blocks that are each half of the length of the original block, or half a unit long.
What if we'd like to have 4 blocks that are as equal as possible? The solution, again, is fairly intuitive. We'd simply take our 2 blocks that are half of a unit long, and cut each of them straight down the middle, yielding 4 blocks that are now a quarter of the length of the original block, or a quarter of a unit long.

What if we wanted to do the opposite and turn a couple of our quarter size pieces back into a block that's half the length of our starting block? We'd take some glue and attach two pieces together because 2 pieces that are a quarter of a unit long will add up to be a half of a unit long.
You might have begun to notice a pattern here that revolves around the number 2. No matter how you want to manipulate the length/ number of your blocks, it will always involve either:
• A clean cut down the middle, causing a division in length by two or...
• A joining of two equal sized pieces, causing in multiplication in length by two.

We can therefore describe the relationship of these blocks to each other as "binary," a word whose dictionary definition reads: relating to, composed of, or involving two things. Our musical notes work in exactly the same fashion, so let's re-contextualize all of this information by applying it to our rhythmic hierarchy.


1 unit long
1/2 unit long
1/2 unit long
1/4 unit long
1/4 unit long
1/4 unit long
1/4 unit long

The whole note is the same as the original block we discussed in our visual example. Instead of being a physical item that's one 1 unit long, however, the whole note represents a duration of sound that's 1 unit long.

If we wanted to separate the whole note into two equal notes, we'd split it right down the middle, generating two notes that each hold half of the value of the whole note. Very appropriately, these are called half notes. What if want to create four notes that fit within the space of a whole note? We'd repeat what we did in the visual example and take each of our half notes and split them evenly down the middle, generating a total of 4 notes that each hold only a quarter of the space that a whole note does, and these are called quarter notes.

The name of the note you're looking at indicates the fraction of a whole note space that the note occupies. If we look down one more tier past the quarter note on our hierarchy chart, for example, we can see that our next group of notes called eighth notes. We can therefore deduce that these take up an eighth of the value that a whole note does.

The great thing about a system like this is that it works intuitively in terms of the math behind the music. If an eighth note holds an eighth of the value that a whole note does, then it makes sense that you'd need to put 8 eighth notes together to add up to the full value of a whole note. Conversely, if you wanted to split a whole note up into 8 equal notes, then you'd want to generate 8 eighth notes.

The hierarchy works in this way all the way from whole notes to 32nd notes and beyond, and the rules to travel through the tiers can be summed up like this:

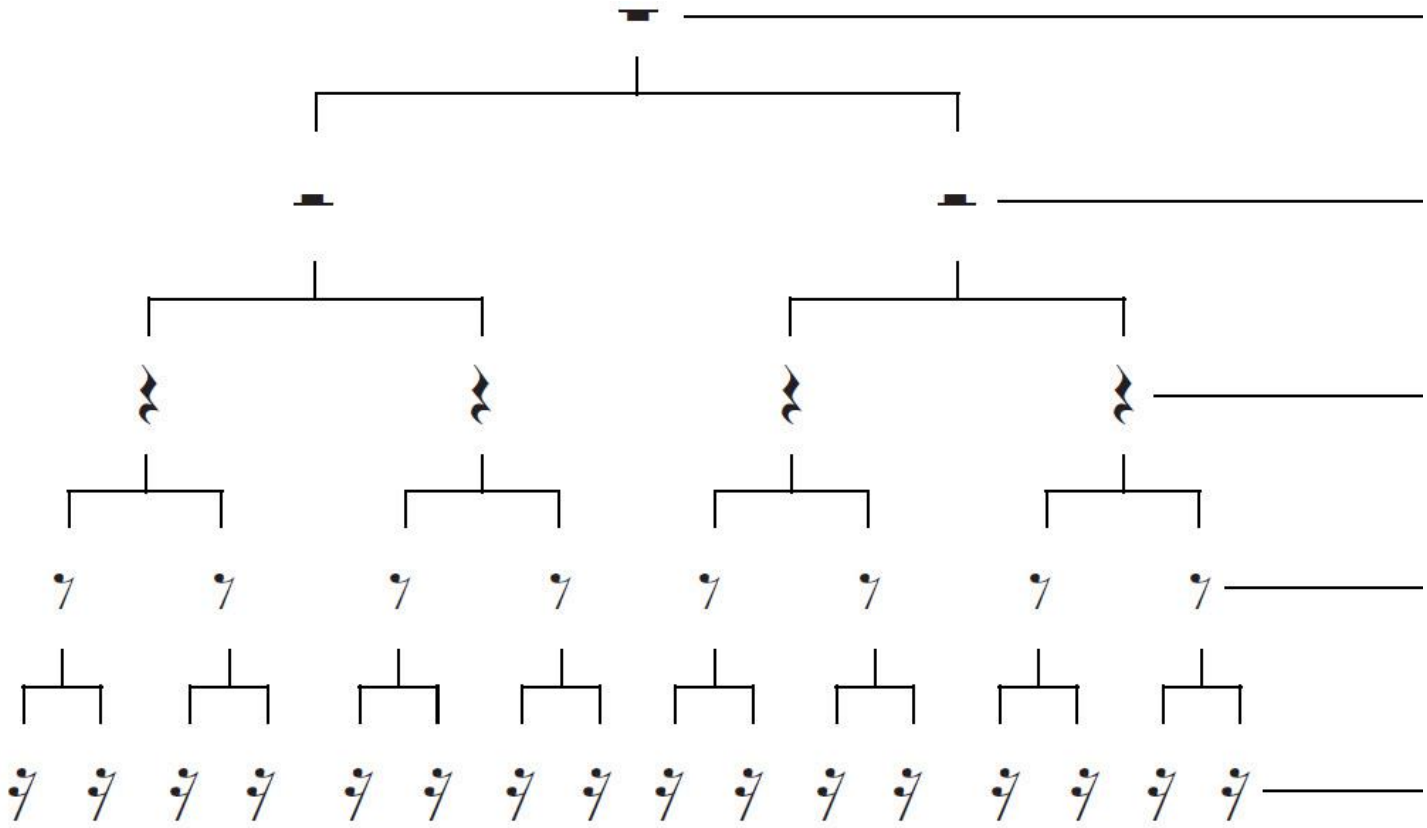
- In order to travel down a tier, we are dividing the value of the original tier in half, resulting in two new notes that when put together, take up the same amount of space that one note from original tier held. Ex. One quarter note will divide down into two eighth notes, one eighth note will divide down into two 16th notes, and so on.
- If we want to travel up a tier, we must double the note value of the starting tier, resulting in only one note that will take up the exact amount of space that two notes in the starting tier held when added together. Ex. Two 32nd notes will compound back into one 16th note, two 16th notes will compound back into one 8th note, and so on.

The ability that musical notation has to compound or break down like this is called subdivision, and the fact that the system works so elegantly is no coincidence. It was designed in this way to give musicians a neat and even musical grid to perform within that also gives them clear ways of checking whether every single note is being placed exactly where it goes.

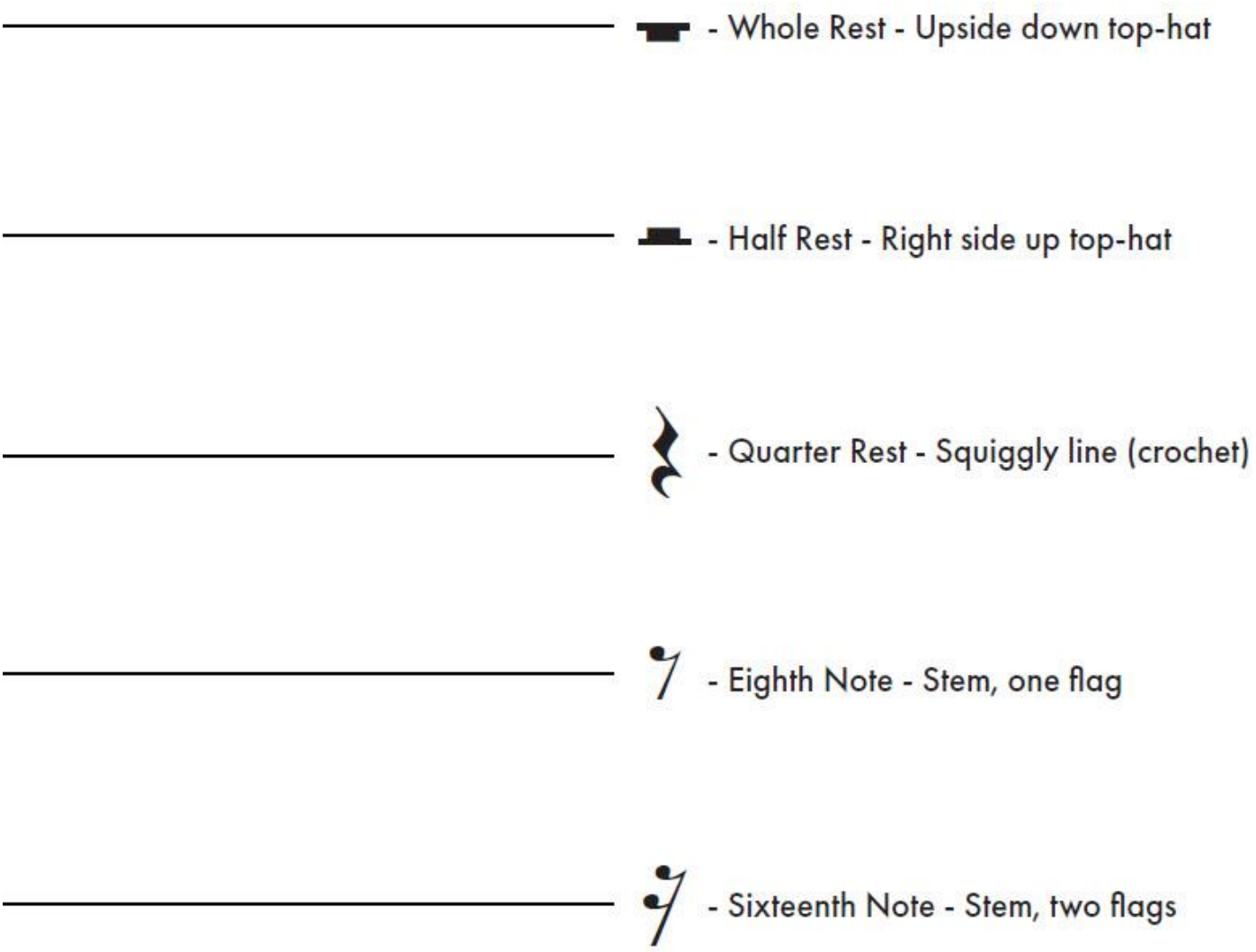
Rests

The opposite of sound is silence, and just like we have a notation system to indicate when we're going to play, we also have one to indicate when we shouldn't play. These intervals of silence are called rests, and they have their own set of symbols to indicate the duration of silence. Luckily, if you understand the binary nature of the rhythm hierarchy we've already discussed, the rests work in exactly the same fashion. Take some time to review the hierarchy on the next page.

THE RHYTHMIC HIERARCHY
-RESTS–



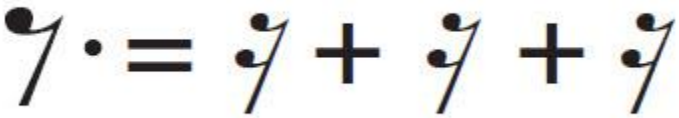
REST ANATOMY



Dotted Note and Rest Value

One way to modify the duration of a specific note value or rest is by applying a dot to the right of that note or rest. The dot increases the duration of the note or rest that it is modifying by half of that note value. Let's look at two examples to see the dot modifier in action.

We'll first look at a dotted quarter note. As we've already seen in our rhythmic hierarchy, a quarter note can be subdivided down into two eighth notes, so those eighth notes each hold one-half of a quarter note. Therefore, a dotted quarter note retains the same amount of space as 3 eighth notes do: 2 eighth notes that a quarter note traditionally holds, plus the extra eighth note that half of a quarter note holds.

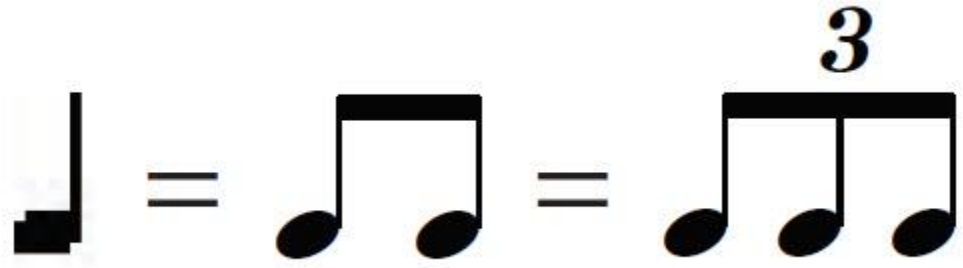


We'll look at a dotted eighth note rest next. Taking another look at our rhythmic hierarchy, an eighth note can be subdivided down into two sixteenth notes, and those sixteenth notes each hold one half of an eighth note. Therefore, a dotted eighth note retains the same amount of space as 3 sixteenth notes do: 2 sixteenth notes that an eighth note normally holds, plus the extra sixteenth note that half of an eighth note holds.

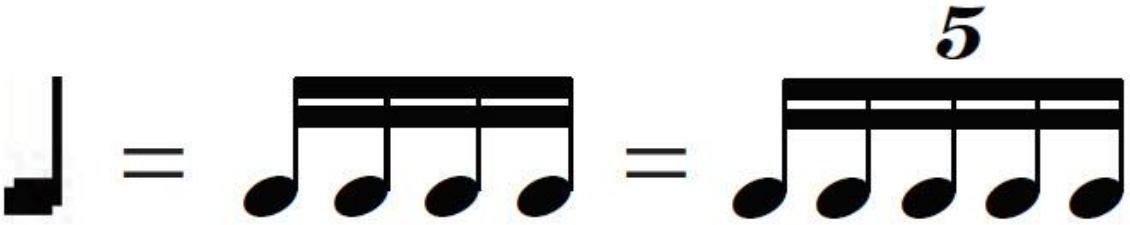
Tuplets

Up until this point, we've discussed the relationship between our note values and rests solely as binary, but music is not always going to be subdivided in this way. Sometimes we're going to want to divide a quarter note down into 3 equal spaces instead of into two eighth notes like we've discussed. For cases like this, we're going to use tuplets, which are any rhythm that involves dividing the beat into a different number of equal subdivisions from that are usually permitted by the time-signature.

As an example, a quarter note can be subdivided down into two eighth notes, or into three irrational divisions, a set of which is called a triplet.



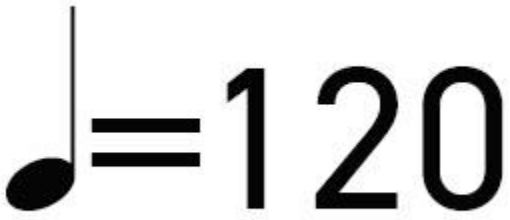
As another example, a quarter note can be subdivided down into four sixteenth notes, or into 5 irrational divisions, a set of which is called a five-tuplet, or five-let.



The subject of tuplets can become pretty expansive once you have a broader understanding of music notation, and we'll be delving deeper and deeper into the topic as we continue through The Basics. As long as you understand that the possibility of subdivisions that aren't just binary exists, you are on the right track for now.

Tempo

If you've listened to even a small amount of music in your life, you can agree that there are songs that are fast, and there are songs that are slow. The speed of a piece of music is formally called its tempo, and tempo is communicated through beats per minute (bpm). Here's what a tempo marking will typically look like.



Tempo markings are made up of two components. The note value on the left tells us what kind of note we are assigning to serve as our beat. The number on the right tells us how many of those beats can fit into a minute. Of course, no one is expecting you to try and count 120 beats aloud in order to try and fit them into 60 seconds. Instead, you can find out what any tempo sounds like by plugging it into a metronome.

Metronome

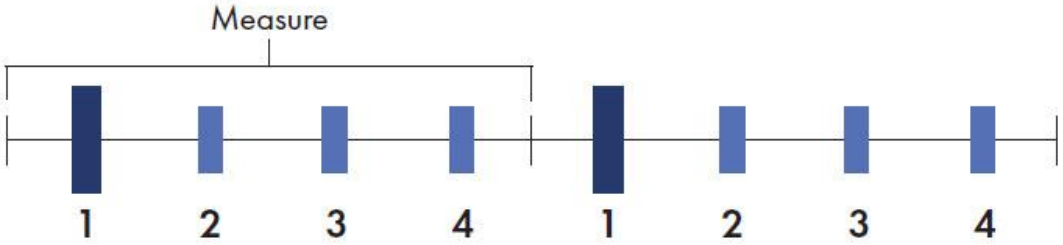
Metronomes exist to mark time for you at any tempo you desire. They can exist as physical devices or be recreated digitally through apps you can download on a mobile device. Once you enter your bpm into a metronome, it will begin to click at a certain speed, and every click will correspond to the note type that was assigned to be the beat.

Time Signature

Thriller is a disco/funk song recorded by Michael Jackson in 1982 that remains instantly recognizable to listeners all over the world to this day. If you've heard it and can vaguely sing it in your head, you'll be set for this next section. If you haven't, feel free to take a quick listen to the tune as you follow along with the text.

Because Thriller is a pretty groovy song, you'll most likely find yourself engaging the music with your body by tapping your foot or nodding your head along to the pulse. Pay close attention to the way you move and realize that you're most likely making these motions in groups of 4. Check this out by starting at a strong point in the song, and count to 4 over and over again along with your head nods or foot taps. You should find that every time you come back to 1, you arrive at another strong point in the music and the cycle begins again.

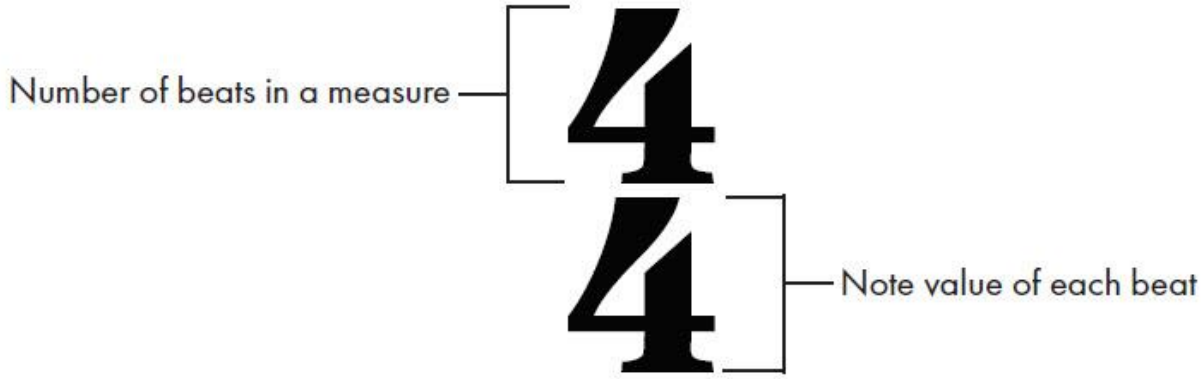
Every time you count a new number, you're counting beats, which are simply a unit of rhythm in music. Because we've counted, we can tell that the beats in this song are grouped into phrases of 4. These groupings can be contained within measures, which are arbitrary segments of time that are defined by a specific number of beats per segment, which in this case is 4 beats per measure.



You'll find that it's helpful to interpret music in measures. Imagine trying to read through an essay that has no spaces or punctuation. You'd be looking at a jumble of letters and it would be almost impossible to derive any meaning from the text. Like punctuation and spacing, measures help

keep our music segmented and clear, and if we want to rehearse a specific phrase in the middle of a piece, measures will give us distinct points where we can start and stop.

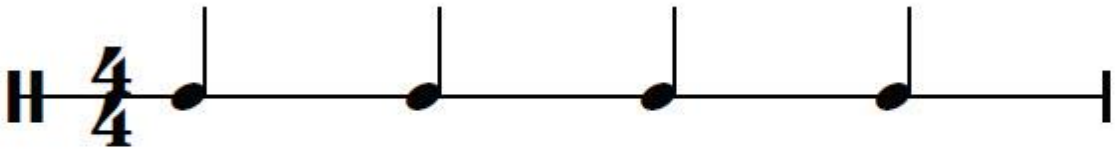
Although Thriller and most other pop tunes will adhere to the formula of 4 beats in a measure, not all music will be this clean cut. Take Five, for example, which is an iconic jazz piece written by Dave Brubeck, is played in groupings of 5 beats. If a composer is writing a new original piece that's never been heard before, how would they communicate to the reader how many beats they should expect to see in a measure? They would accomplish this task by using a time signature.

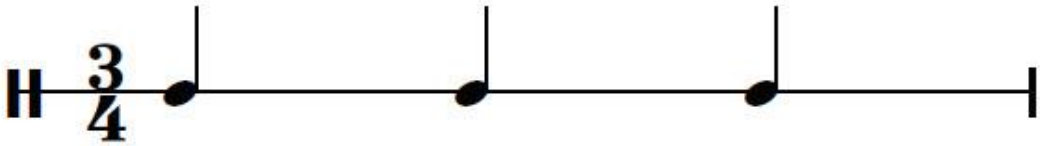


Time signatures are composed of two numbers stacked vertically like a fraction. The number on top, or the numerator, tells us how many beats are grouped within one measure. This is useful, but we're still missing one key piece of information because knowing only the number of beats in a measure is like being told that the size of a piece of paper is 5 by 6. Without units of measurement like inches or centimeters, the numbers 5 and 6 are essentially meaningless.

This is where the bottom number, or denominator, comes into play by telling us the note value we're assigning to be our beat. The denominator gives us this information by indicating what number to divide a whole note by. If the bottom number is a 4, for example, then we're dividing the whole note by 4, and therefore we are assigning a quarter note to be our beat. If it's an 8, then we're dividing a whole note by 8, telling us we're assigning an 8th note to be our beat.

Here are some more examples of some common time signatures you might see in your musical career. As you check this out, pay close attention to the ways the top number and bottom number modify the number of notes, as well as the value of the notes in each measure. If you need to, refer back to the rhythm hierarchy and the explanations on the previous two pages so that you really understand the relationship between the numbers in the time signature and the notation in the measure before moving on.





Dynamics

Dynamics are differences in volume between certain notes or phrases. Imagine yourself listening to a live performance at a concert. While listening to a band or DJ play at their maximum volume might entertain you for a little while, you can probably see how you would might eventually lose interest and feel like walking away to take a breather from the constant assault of noise.

Dynamics allow us to take our listeners on an emotional rollercoaster of loud moments, quiet moments, and everything in between so they are more likely to stay entertained and engaged, and we indicate these changes in volume using a wide assortment of dynamic markings.

This first set of markings communicate information about the volume of a note or an entire phrase, and they range from pp (pianissimo) which means very quiet, to ff (fortissimo) which means very loud. You'll usually find these dynamic markings under the measure or note they are modifying. This set of markings works interestingly because it modifies every single note after the note or phrase its under until you hit another one of these markings.

pp - pianissimo (very quiet)

p - piano (quiet)

mp - mezzopiano (medium quiet)

mf - mezzoforte (medium loud)

f - forte (loud)

ff - fortissimo (very loud)

This second set of markings indicates gradual shifts in volume from an initial dynamic at a defined starting point to a final dynamic at a defined ending point.

A crescendo is a gradual increase in volume and looks like this:

A decrescendo is a gradual decrease in volume and looks like this:

pp = 1″

Pianissimo - Turn from playing position so the beads are halfway between 3 inches and the head.

mf = 9″

Mezzo Forte - Turn from playing position so the sticks are at a 45 degree angle.

p = 3″

Piano - Turn from playing position so the sticks are parallel to the head.

f = 12″

Forte - Turn from playing position so the beads are 3 inches from vertical.

mp = 6″

Mezzo Piano - Turn from playing position so the beads are double the height of 3 inches. (About the height of a dollar bill.)

ff = 15″

Fortissimo - Turn from playing position so the sticks are straight up and down at a 90 degree angle. (Vertical)

Accents are the next set of common dynamic markings and their main purpose in the context of percussion music is to indicate in¬ flections in volume for the notes they're modifying. Unlike the two sets of markings we discussed in the previous page, accents typically only modify one note at a time as opposed to modifying extended phrases or groups of notes.

- Accent - Modifies the note to be 2 dynamics higher than the indicated dynamic

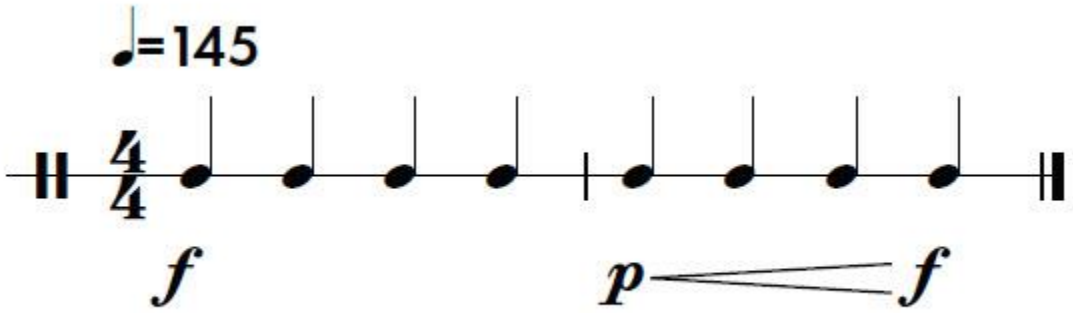
- Marcato - Sometimes indicates a rimshot, or a more aggressive accent

- Tenuto - Functions as a half-accent. Only modifies the note to be one dynamic higher than indicated.

At this point, you've seen all of the forms of music notation that will be relevant to you as you begin your musical career. There are still a few symbols that are more complex and not relevant to us just yet, but we will be sure to cover them when you've developed a knack for this set of notations. At this point, I'm going to show you an example of some sheet music that puts everything we've talked about so far together.

Note that if you are not quite sure how to read the rhythms in this example, that's totally ok! We are simply focusing on interpreting the forms of music notation we've talked about thus far which are the staff, the rhythm hierarchy of note values and rests, tempo, time signatures, and dynamics.

EXAMPLE



Tempo: Let's start with our tempo marking, since that will give us some indication as to what the speed of this passage is. We check the left side first, and that lets us know that the quarter note is the note value that we're setting to be our beat. Looking to the right side of the marking, we can see that the BPM of this piece is 145. Putting this information together means that when you plug 145 into your metronome, the clicks will correspond to the speed of quarter notes in the piece.

Time Signature: Next we'll look to the time signature. The numerator is a 4, meaning that there are 4 beats in each measure. The 4 in the denominator tells us that each of those 4 beats will be a quarter note. This makes sense because when we look at each measure, there are 4 quarter notes.

Dynamics: If we look below the bars, we can see that there's a forte symbol under the first note. Remember that for these markings, that dynamic continues to modify every note after it until we hit another marking, which happens in the second measure. This means that every note in the first measure will be loud, then at the top of the second measure, we'll drop down to piano, which is quiet. Starting on the second measure we have a crescendo that starts at the beginning of the bar and ends at the end of the bar at forte again.

How To Read Rhythms: Part 1

IMPACT PERCUSSION

COREY PEARCE
percussion

A WORD ON RHYTHM

Rhythm is officially defined as the systematic arrangement of musical sounds, principally according to duration and periodic stress. There's some fancy terminology going on in that definition but in essence, rhythm is the component of music that tells us when to play, when we should be silent, and how long each instance of playing or silence should be.

We communicate information about rhythm using the Rhythmic Hierarchies of Note Values and Rests, and by stringing together different combinations of these "puzzle pieces," we can create endless combinations of rhythms to play.

Reading and understanding the rhythmic component of a piece of music requires the ability to recognize the value of every note you see through its anatomy, as well as having the knowledge of how to piece these notes together based on the math behind the music.

THE RHYTHM EQUATION

"The math behind the music" is a phrase I use to describe one of the most important attributes of reading and writing rhythms. It refers to the fact that the total value held by the notes and rests within a measure MUST add up to the value the measure is allowed by its time signature.

It's useful to picture the relationship between a measure's time signature and its contents as a 2-sided equation where it's the composer's job to make sure both sides are equally balanced.

Let's take a look at a few examples so that you understand this relationship before moving on to the counting and performance of different rhythms.

EXAMPLE ONE

Again, our goal here is to ensure that the contents of this measure line up with the expectation of counts set forth by the time signature.

The time signature of this bar tells us that we should expect its contents to add up to no more and no less than the value held by 4 beats of quarter notes. The left side of our Rhythmic Equation will therefore be 4.

$4 = 4 + 0$

Let's check out the right side of the equation by adding up the notes and rests to ensure that this measure is balanced. There are 4 quarter notes in this measure which are each one count long and no rests. The total value of the contents in the measure is 4; the equation is therefore balanced, and the expectation set by the time signature has been successfully met.

EXAMPLE TWO

The time signature in this example is the same, but the contents of the measure have changed slightly. The first 3 notes in the measure are still quarter notes. The last note, however, has changed from a quarter note into a half note.

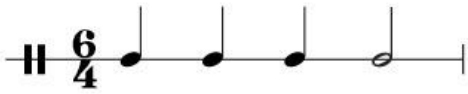
Our understanding of the rhythmic hierarchy of note values lets us know that a half note occupies the same amount of space that two quarter notes do. By adding this last half note, we've effectively caused this measure to have the equivalent of 5 quarter notes of music in it.

$4 \neq 5 + 0$

The left side of the equation remains the same due to unchanged time signature, but the right side has gone from 4 to 5 beats. The equation is unbalanced, and therefore this measure is incorrectly written and is not performable.

EXAMPLE THREE

In this measure, we see the exact same arrangement of notes as are contained within the bar in Example 2. The time signature, however, has changed. Instead of remaining in 4/4 time, we are now operating within a time signature of 6/4. This means that we should expect the contents of this measure to add up to 6 beats of music, with each beat holding a quarter note's worth of space.

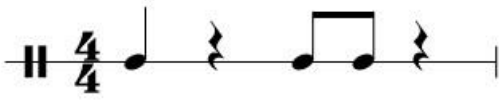


With only 5 counts of music and no counts of rest, our Rhythmic Equation is out of balance. This time there are too few beats of content in comparison to the expectation set by the time signature, but the result is the same. The measure is incorrect and impossible to perform as it is written.

EXAMPLE FOUR

There are a couple of new ideas in this final example measure. First of all, we're no longer occupying the entire measure with notes; we've now thrown some rests into the mix. Recall that although rests are indications of silence, they still hold specific amounts of space depending on the type of rest they are. In this case, these quarter note rests occupy the exact same amount of space that a quarter note does: 1 count.

We've also introduced some eighth notes into the picture. We know from our rhythmic hierarchy that each of these eighth notes holds half of the value a quarter note does, or half a count. Adding up a quarter note and 2 eighth notes gives us 2 counts and adding up the rests gives us 2 more counts. When stacked against the expectation set by the time signature, which is 4 counts, we find that the equation is balanced, and the measure works as it should.



TRUSTING THE MATH

Although I've shown you some examples of measures that work as well as measures that don't, realize that this was only for the purpose of helping you understand that music is structured in a very mathematical and precise way. In general, a composer will rarely, if ever, make a mistake regarding too many or too few contents in a measure, so you can trust that the music you read works mathematically.

The fact that you can trust the composer writing your music makes it so that we can rely on the same uniform counting system no matter what piece of music you're looking at. This is important because interpreting rhythms correctly will require a deep understanding of how to count your way through different note values and rests and imagine how difficult this would be if you had to count every piece of music differently depending on the composer.

With all that out of the way, let's finally get into getting accustomed to our method for counting rhythms.

1 2 3 4

The Counting Method

IMPACT PERCUSSION

COREY PEARCE
percussion

I want to introduce the rhythmic counting system we will be utilizing by describing it alongside an analogy. Let's start with the most basic combination of quarter notes possible within a measure of 4/4.

Envision this measure as a length of track, where every beat is represented by a light post that is controlled by a switch. Whether the switch is on or off depends on whether there's a quarter note on that beat, in which case it's on; or if there's a quarter note rest on that beat, in which case the switch would be off.

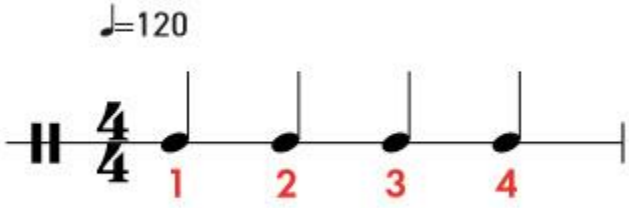
As a musician reads through a rhythm, it's like they're travelling down the track at a given speed decided by the tempo. As they cross the beats/light posts, they'll play a note if the light is on, or stay silent if the light is off.

The key point of this analogy is that whether the light post is on or off, it still exists at a specific point on the track for the musician to check. In the same fashion, whether a beat is occupied by a note or a rest, it's still important to acknowledge it for the purpose of counting.

A great way for you to internalize this "underlying skeleton" is by learning to vocalize it.

Let's first make sure we're working at the right speed by pulling out a metronome and setting it to 120 BPM. Since the note value in the tempo marking is a quarter note, every click your metronome gives you corresponds to another quarter note in time.

The time signature of this bar is 4/4, which means that there are four beats in this measure, each of which holds a quarter note's worth of space. We already know that a quarter note is a full count long, so the first component of our counting system will involve identifying each of these counts by assigning numbers to them in order. The first quarter note is count 1, the second quarter note is count 2, and so on.



Count aloud from 1 to 4, counting a new number every time you hear a new click from your metronome. Once you reach the number 4, return to count 1 for the next click and repeat. Here's what your vocalizations should sound like against the click of the metronome.

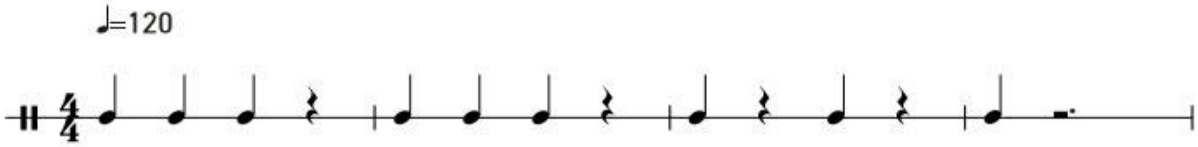
"ONE - TWO - THREE - FOUR - ONE - TWO - THREE - FOUR"
click *click* *click* *click* *click* *click* *click* *click*

These vocals are of the "underlying skeleton," or the light posts on the track. Your next task is to stop at each beat and check whether its switch is on or off. In this particular case, because all 4 beats carry a quarter note, all the switches are on, which means you should play a note on every number that you're counting.

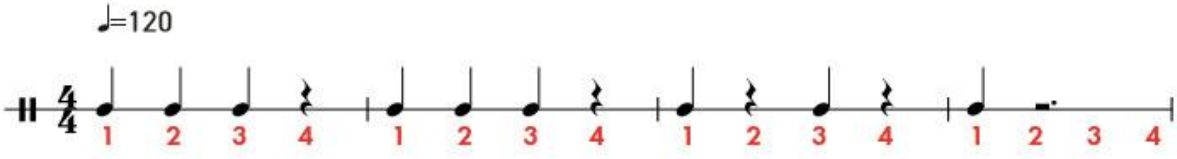
Choose between clapping your hands together or tapping on your leg while sitting down. As you vocalize the skeleton of the 4 beats in a 4/4 measure, clap or tap along to the 4 beats. Altogether, the click of the metronome, your vocalizations, and your playing should match up like this:

CLAP CLAP CLAP CLAP
"ONE - TWO - THREE - FOUR"
click *click* *click* *click*

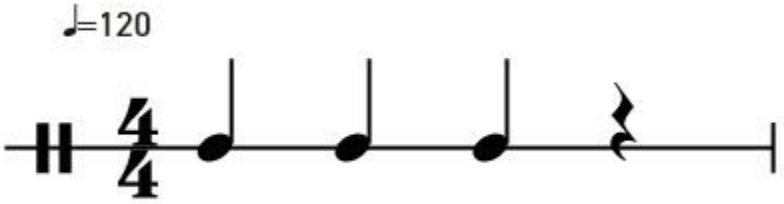
If you can clap your way through this measure, then you've successfully played your first rhythm! Of course, there's only one way to play this measure, so let's throw some rests into the mix to check out how they operate within our rhythm counting method. Take a look at this 4-bar chunk.



The thing that will help us out the most here is the fundamental idea behind the Rhythmic Equation. Remember that the contents in a bar must add up to the expectation set forth by the time signature. We know that each measure in this chunk will hold 4 beats, so our only task at this point is to identify where in time we will play notes, and where in time we will rest. Let's do what we did in the previous example and assign counts based on the value we know each of these notes/rests to hold based on their anatomy.



Let's focus in on the first bar of the phrase first and identify which counts hold notes and which counts hold rests.



Counts 1, 2, and 3 all hold notes; count 4 holds a rest. Pull out your metronome and set it to 120 BPM and get it started. Go through the same vocalizations you did before, counting from 1-4 with the click in order to establish the underlying quarter note rhythm.

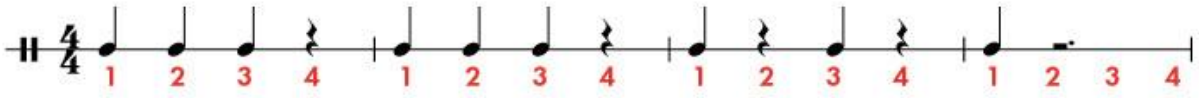
Your job is now to clap/tap on the counts that have been" switched on" (quarter notes) and stay silent for the counts that have been "switched off" (quarter note rests). Altogether, the click of the metronome, your vocalizations, and your playing should line up like so:

Go through this same process for each measure in the phrase on the previous page individually first. Recall that your process is as follows:

- **Identify which counts hold notes, and which counts hold rests.**
- **Vocalize the entire underlying quarter note rhythm to a metronome.**
- **Play to the counts with notes, stay silent to the counts with rests.**

Once you have worked through each bar individually, your next task is to string them together in sequence and play them back to back.

I invite you to try to accomplish this on your own first. If you need help or want to check your work, the full sequence with the correct way the vocalizations, clicks, and playing should line up will be on the next page.



MEASURE 1

CLAP CLAP CLAP silence

"ONE - TWO - THREE - FOUR"

click *click* *click* *click*

MEASURE 2

CLAP CLAP CLAP silence

"ONE - TWO - THREE - FOUR"

click *click* *click* *click*

MEASURE 3

CLAP silence CLAP silence

"ONE - TWO - THREE - FOUR"

click *click* *click* *click*

MEASURE 4

CLAP silence silence silence

"ONE - TWO - THREE - FOUR"

click *click* *click* *click*

If you're able to count and play your way through these 4 bars, then you've developed a good understanding for the way quarter note values work within the context of the rhythm counting system we're trying to establish.

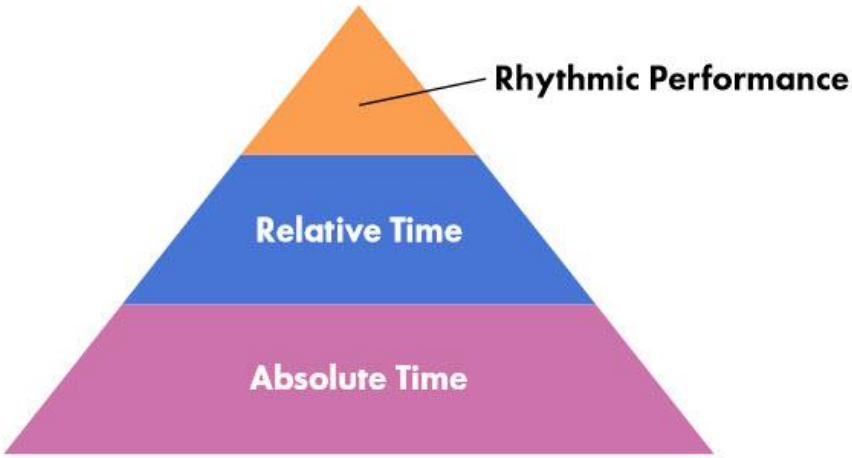
You're now ready to apply this knowledge in order to practice the skill of reading and playing more rhythms.

The Pyramid of Time

At this point, it's worth it to have a discussion about time; more specifically, how to develop a more natural and internal sense of time. We can agree that the most perfect representation of time we've used thus far in this lesson book is the metronome. Upon entering a tempo, it will immediately give us the exact correct interpretation of that tempo so that we have no excuse to make a mistake regarding the speed of a piece of music.

If metronomes are so perfect, why don't more live musical acts simply have a metronome running in the background to minimize the risk of anyone falling out of time? A likely answer is that no one in a live audience would be particularly fond of the sound of a metronome behind the music they're actually trying to listen to. Beyond that, one could argue that it's simply more impressive to watch a group of musicians "sit in the pocket" flawlessly without the aid of a timekeeping device. The only reason musicians can pull this off, however, is because they've developed a great sense of internal tempo.

Internal tempo refers to your ability to perceive tempo in a relatively accurate way without the use of a metronome. The best way to develop this ability is to rehearse with the Pyramid of Time in mind.



At the very base of our Pyramid of Time we find Absolute Time, or time coming from a source that can be trusted to be deliver perfect tempo, like a metronome. Whether it be digital or mechanical, a metronome is a device that we can expect to be right on the money every time we ask it to mark time for us.

Above Absolute Time lies Relative Time, which describes a person's individual perception of time, or internal tempo. We call it relative because no two people perceive time in exactly the same way. If you were to ask two musicians to clap quarter notes at 145 BPM, for example, it's very unlikely that

a) They'd clap at exactly 145 BPM,
b) They'd both clap at the same speed as each other.

Relative Time is therefore exactly that; relative to the experiences and training a musician has had to play accurate time, which of course varies from person to person.

Lastly, at the very top of the pyramid lies Rhythmic Performance, which describes the accuracy of the rhythmic content a musician play. This is where we a musician uses Absolute and/or Relative Time to place their rhythms where they believe them to lie based on either their individual perception of tempo, or on a tempo being given to them by a metronome. These might all seem like close to the same idea upon your first read, so let's try to gain a better understanding by comparing it to learning math.

When learning math in a classroom, a fundamental concept a teacher will try to get across to their students is that knowing the theory and the proofs behind the arithmetic is vital to understanding the material. It's not enough to simply know how to plug the numbers into a calculator to get the result. This is why many teachers will prohibit the use of calculators come test day; to ensure the student understands the math and isn't simply learning how to press the buttons on a calculator in the right order.

A calculator is very much like the metronome that we trust as a source of Absolute Time in that it's a strong tool that gives us definitive answers as long as we use it correctly. It's my hope however, that when we remove tools like metronomes and calculators, the Relative Time you've developed is strong enough on its own to help you execute a high quality Rhythmic Performance, just like knowing the proof necessary to solve a problem on an algebra test.

The main way in which this analogy fails, however, is that while you don't necessarily need a calculator to build a strong understanding of arithmetic, you do need to spend a lot of time with a metronome to develop a strong sense of internal time. Let's talk about how to most effectively use the Pyramid of Time to your advantage.

The great thing is that if you've been following the process, we've been laying out for our Rhythmic Counting System closely, then you've already been developing your affinity for the Pyramid of Time. To understand how, let's take a look at the verbal representation of how you were counting rhythms.

At the very bottom of this representation is the click of the metronome, which corresponds to the lower third of the Pyramid of Time: Absolute Time. This is the base of our system and serves as the foundation

that everything else is built upon. We rely on our metronome to build this foundation so it can be strong.

Above the click are your vocalizations which correspond to the middle of the Pyramid: Relative Time. This is your individual perception of the tempo, and for it to be strong, you must ensure that it lines up as perfectly as possible to the click. Later on, we will introduce other, more subtle ways of developing your internal tempo, but for now, the vocalizations will be great for developing your Relative Time as well as letting you know what count you're on so you can accurately play the rhythms in this book.

Finally, at the very top lie the rhythms you're playing, which correspond to the very top of the Pyramid: Rhythmic Performance.

So the hierarchy should work as follows:

You'll set your metronome to the desired tempo.

You'll line up your internal time exactly to the metronome.

You'll play your rhythms to your internal time.

You might be wondering why you shouldn't just play your rhythms to the metronome, which is obviously the more exact source of time.

My hope is that when it comes time to remove the metronome, the Relative Time you've built upon the foundation of Absolute Time is precise enough that you can still perform your rhythms to that internal time, sort of like prohibiting a calculator on a test but still knowing how to perform the arithmetic necessary to solve an equation.

Quarter Note Timing

IMPACT PERCUSSION

COREY PEARCE
percussion

With a reliable system for counting quarter notes and quarter note rests in your pocket, let's finally begin practicing your ability to read through different quarter note-based rhythms.

The sheet music on the following pages is structured in what we call a 4-2-1 Grid. Primarily, a grid is a form of practicing in which you go through every configuration of a specific musical idea possible by cycling the idea through the entire bar. In the first piece, for example, we are going to be gridding one rest, so the first pattern puts the rest on count 1, the second pattern puts the rest on count 2, the third pattern puts the rest on count 3, and so on.

The 4-2-1 refers to amount of bars you rehearse each pattern for before moving on to the next one. In the A section of the pieces, you'll play each pattern for 4 bars. In the B section, you'll only play each pattern for 2 bars each. Lastly, the C section will require you to cycle through the patterns for only 1 bar each.

The point of practicing rhythms in this way is that it allows you to build your affinity for the patterns in two different ways.

- At the very beginning of each exercise, the focus is on repetition. You get four chances to understand each pattern before attempting the next one.
- Towards the end, the focus switches to your ability to read/think ahead as you string different patterns back-to-back as seamlessly as possible.

With that in mind, here are some things to consider as you work through this sheet music:

TAKE YOUR TIME

Although there's a substantial amount of music on each page, there's no obligation for you to play through all of it at once at a fast tempo. Start with a slower BPM and work through one bar at a time. Once you've perfected one bar, move on to the next and go through the same process, then go back and string the 2 together. Try playing through entire lines, then play from letter to letter, and lastly, put the entire page together. At this point, increase the tempo by small amounts and work your way gradually to those faster BPMs.

KEEP COUNTING

You already know that counting plays a big role in reading and understanding rhythms. As you get better at reading, you might feel like taking a break from going through that process. At the beginning of your career, however, it's beneficial to identify the counts and rests, so continue counting even if you think you've got it down! Additionally, I've left space under every bar for you to write in your counts if that's something you feel would help.

STRIVE FOR PERFECTION

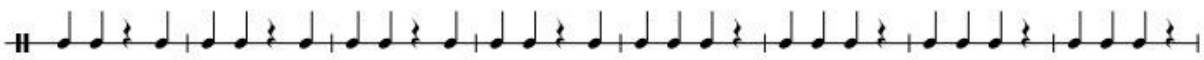
Constantly strive to hold yourself to a higher standard in terms of playing perfectly in time. The best musicians in the world hold that title because they chose not to move onto to new concepts until they felt they'd squeezed every last bit of potential out of the one at hand. The more you can embody this early on, the faster your progression will be, and you won't have to return to refine these basics later on.

1-A QUARTER NOTE TIMING

Gridding: One Rest

♩ = 100, 110, 120, 130, 140, 150, 160

A



B

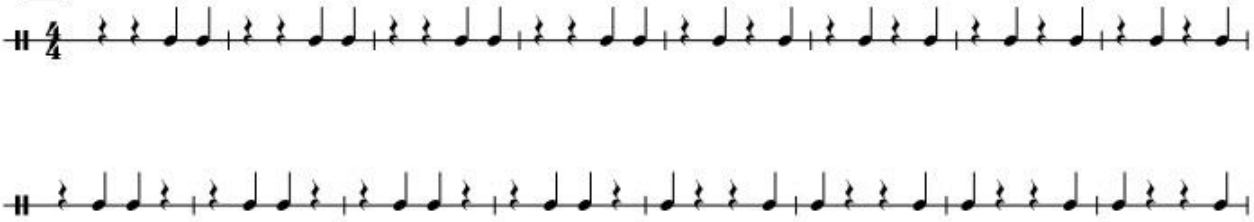
C

1-B QUARTER NOTE TIMING

Gridding: Two Rest

♩ = 100, 110, 120, 130, 140, 150, 160

A



17

B

41

C

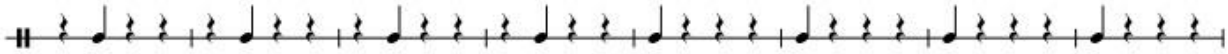
65

1-C QUARTER NOTE TIMING

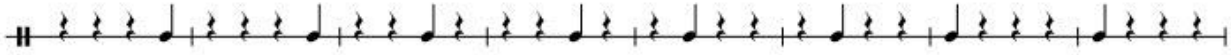
Gridding: Three Rest

♩ = 100, 110, 120, 130, 140, 150, 160

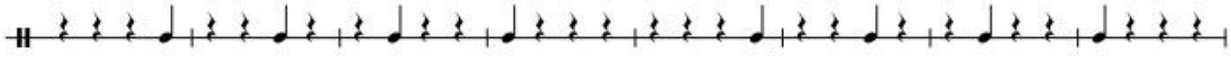
A



B



C



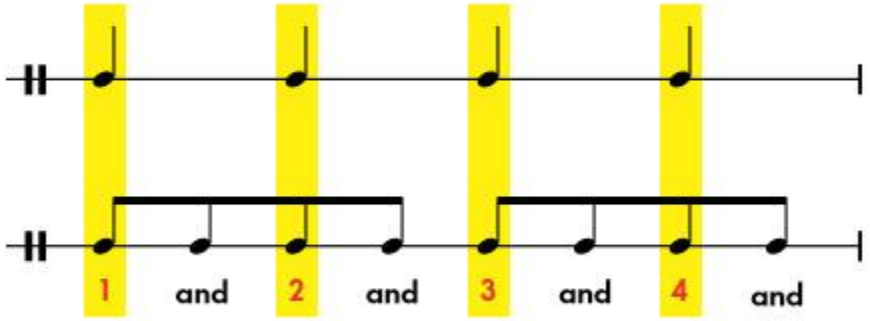
Eighth Note Timing

IMPACT PERCUSSION

COREY PEARCE
percussion

We're now going to move on to the next subdivision in the Rhythmic Hierarchy located under the quarter note: the eighth note. Let's get into how this rhythmic puzzle piece fits into the Rhythmic Counting System we've talked about so far.

We already know that an eighth note holds half the value that a quarter note does, meaning that if we put two eighth notes together, that space is equivalent to the one held by one quarter note, so mathematically, quarter notes and eighth notes line up like this:



The "and's" in between the 4 main counts that you've hopefully recognized are the ways in which we vocalize upbeats. Upbeats are what lie in between downbeats, which are all of highlighted beats in the bottom measure, or counts 1, 2, 3, and 4. To put this into the context of our vocalization diagram, we would count this measure along to a metronome like so:

"ONE - and - TWO - and - THREE - and - FOUR - and"

click *click* *click* *click*

When we were working with quarter notes, we introduced some rests in order to create some more creative combinations of rhythms to play around with, so we're going to do the same here and check out how our counting changes once we're not trying to play every single eighth note in a bar. Take a look at the following measure:

At this point, you can do one of two things. You can go ahead and vocalize every count along with every eighth note vocalization, and play along like so:

Or you can do something a little more simplified, where you only count the downbeats, or counts 1, 2, 3, and 4, and you use the fact that you understand that eighth note upbeats occur exactly in the space between the downbeats to clap at the correct time, like so:

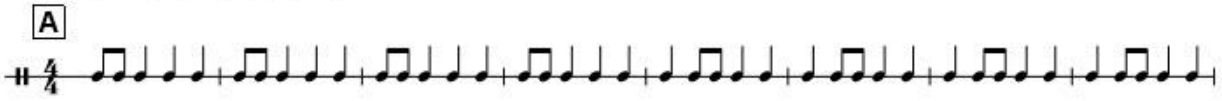
Which method you use depends on how comfortable you are with perceiving the space in between all of the counts you're vocalizing. At first, I highly recommend that you go with Method 1, but once you gain a higher affinity for eighth note timing, try removing all of the vocalizations in between and simply negotiating that space with your head so you can still play accurately.

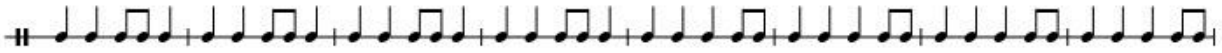
2-A EIGHTH NOTE TIMING

Gridding: One Beat

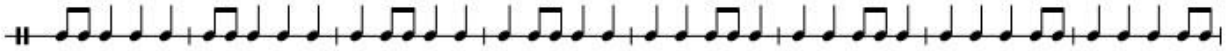
♩ = 100, 110, 120, 130, 140, 150, 160

A





B



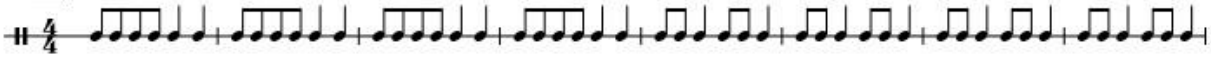
C

2-B QUARTER NOTE TIMING

Gridding: Two Beat

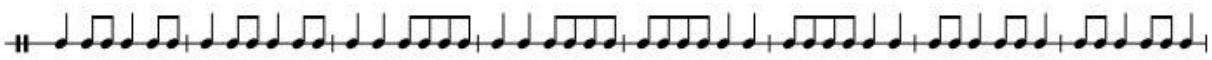
♩ = 100, 110, 120, 130, 140, 150, 160

A



17

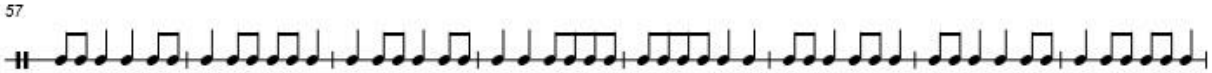
B



41

C

57



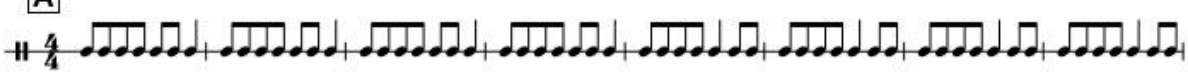
65

2-C EIGHTH NOTE TIMING

Gridding: Three Beat

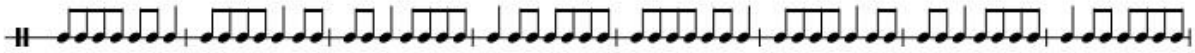
♩ = 100, 110, 120, 130, 140, 150, 160

A



B

C

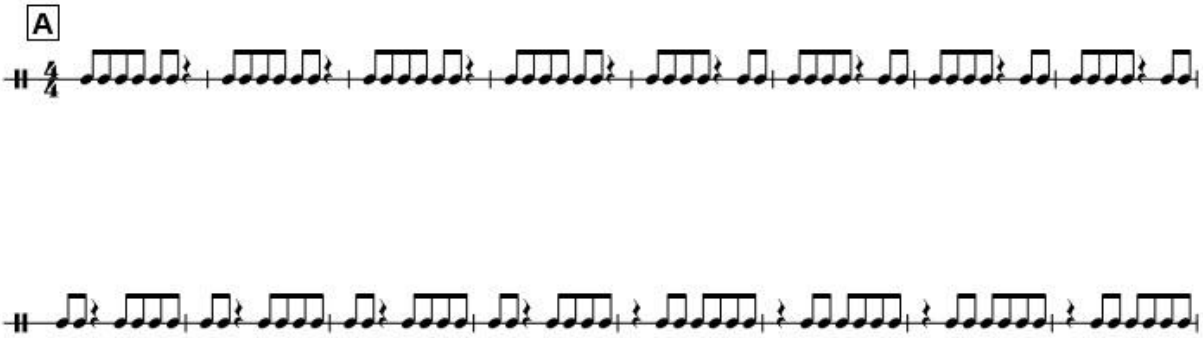


2-D EIGHTH NOTE TIMING

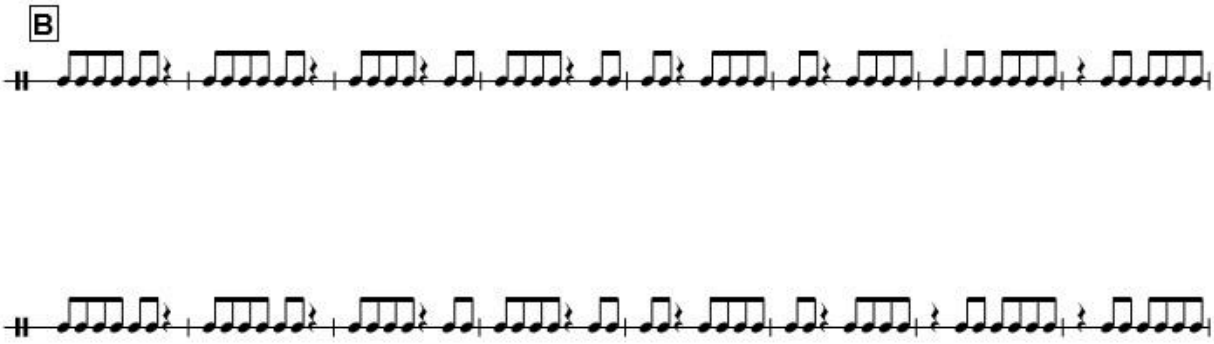
Gridding: One Rest

♩ = 100, 110, 120, 130, 140, 150, 160

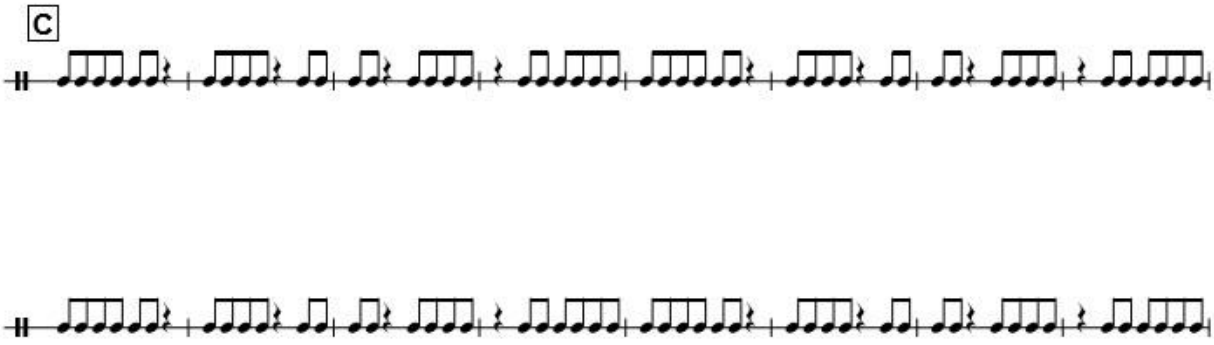
A



B



C



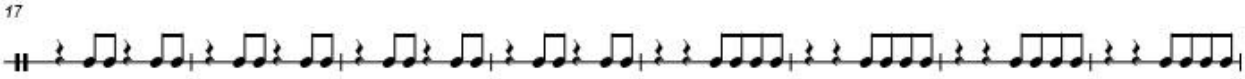
2-E EIGHTH NOTE TIMING

Gridding: Two Rest

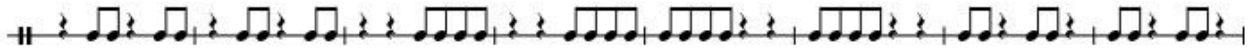
♩ = 100, 110, 120, 130, 140, 150, 160

A

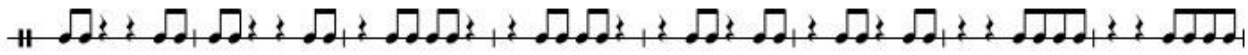
17



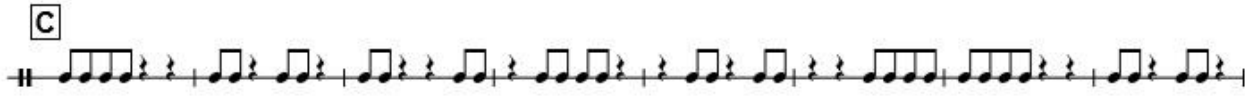
B



41



C



57

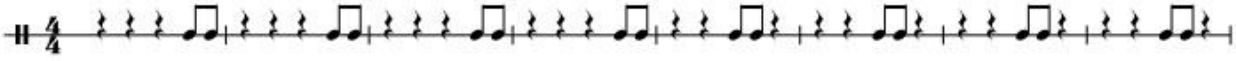
65

2-F EIGHTH NOTE TIMING

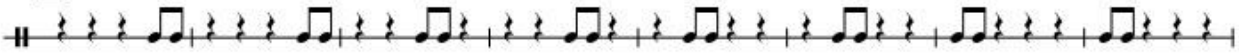
Gridding: Three Rest

♩ = 100, 110, 120, 130, 140, 150, 160

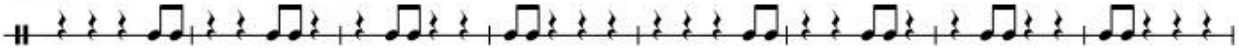
A

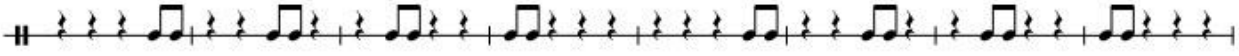


B



C





So far, we've only utilized quarter note rests in order to create different combinations of rhythms, but we're going to mix things up by introducing eighth note rests. Just like quarter note rests, eighth note rests hold the exact same value of time their note counterpart does. Let's look at an example bar and take a look at how this new puzzle piece fits into our counting system.

The first beat is occupied by a quarter note and the next one is occupied by two eighth notes. Beat 3 also holds two eighth note containers with the first being a rest and the second being a note. Lastly, beat 4 is exactly the same as beat 3, eighth note rest on the first container, and a note on the second.

The system works exactly as it did when we were only working with quarter notes, except that now we're working within a finer subdivision of rhythms, sort of like measuring a length of wood using inches instead of feet. Continue to count ALL of the eighth notes in the measure, with the downbeats lined up perfectly to the metronome, then proceed to clap or tap on only the notes that aren't rests, lining each one up to its respective counts, like so:

Proceed to read through the next few pages of exercises that introduce the eighth note rest into the mix. Refer back to page 19 in order to recall what your priorities should be as you rehearse.

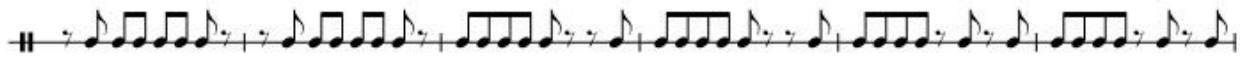
2-G EIGHTH NOTE TIMING

Patterns: 1 & 2 8th Rests

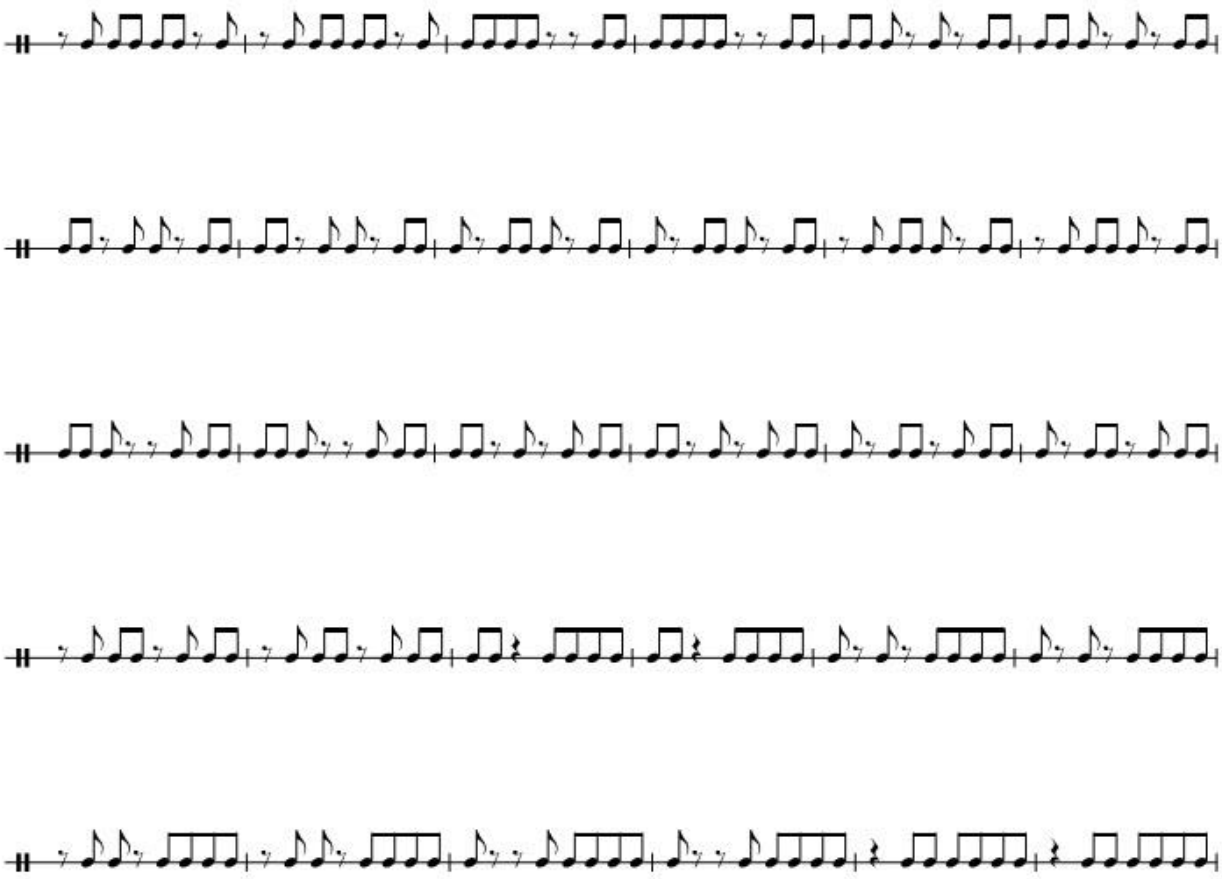
♩ = 100, 110, 120, 130, 140, 150, 160

A

B



Cont. on next page >>>

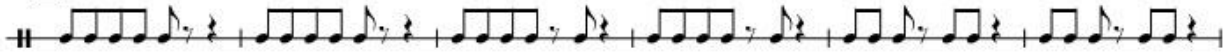


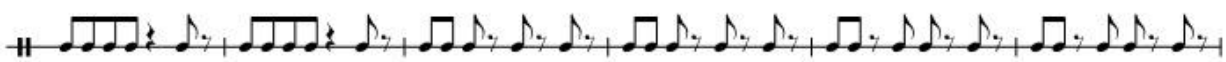
2-H EIGHTH NOTE TIMING

Patterns: 3 8th Rests

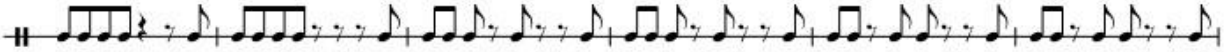
♩ = 100, 110, 120, 130, 140, 150, 160

A



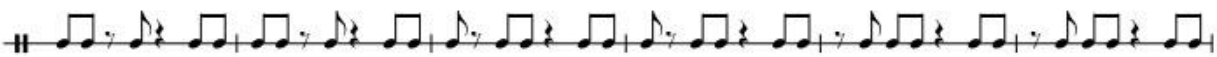


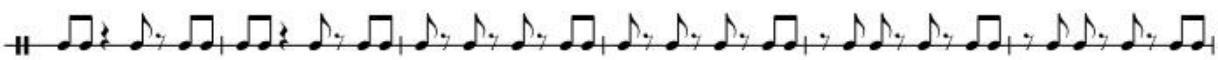
B



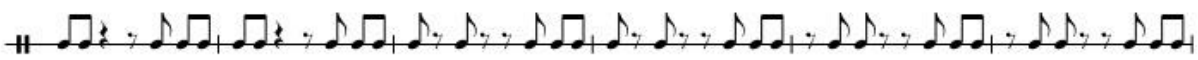
Cont. on next page >>>

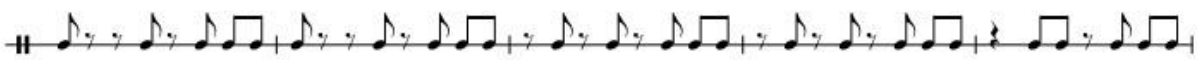
C





D



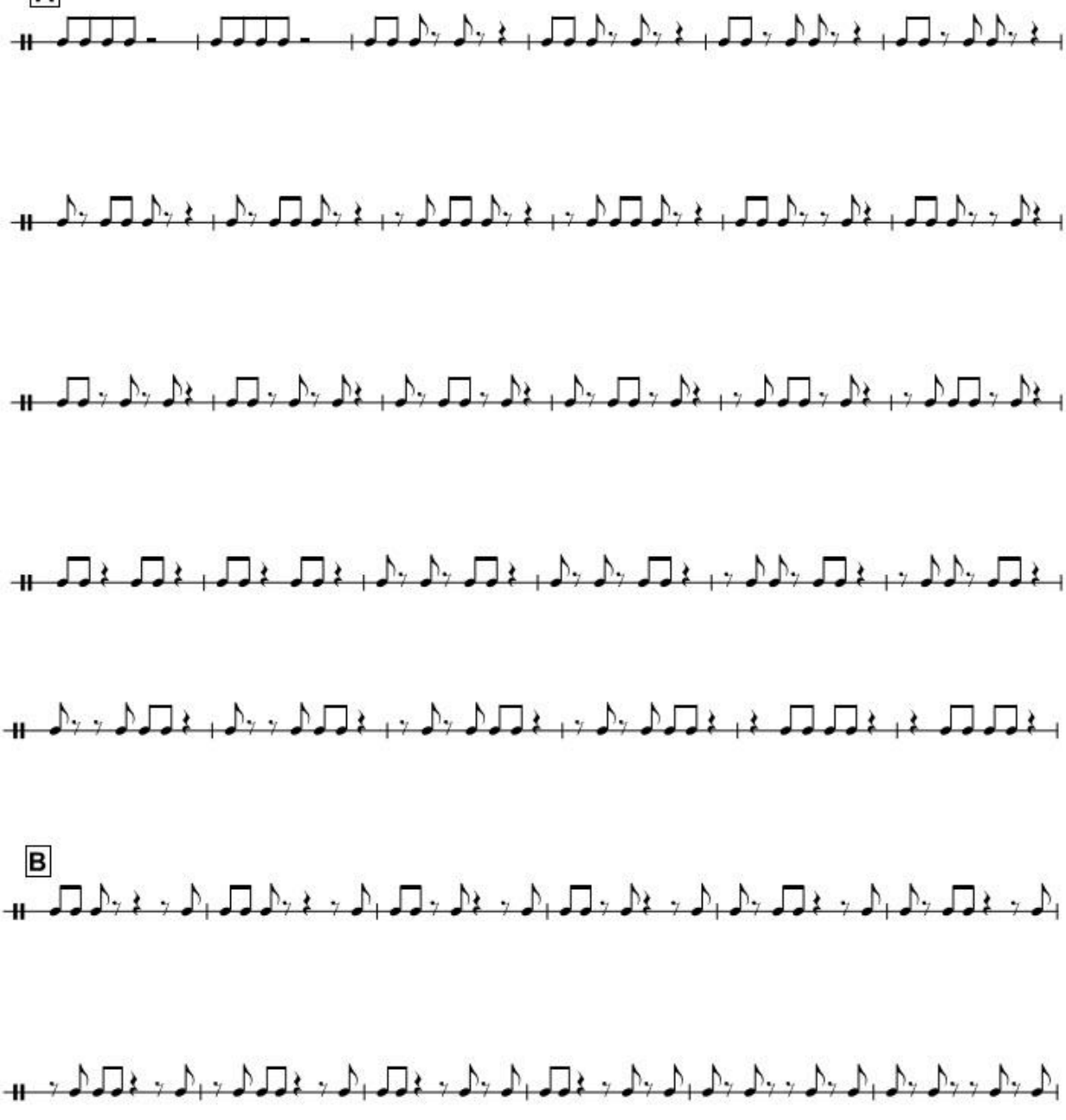


2-I EIGHTH NOTE TIMING

Patterns: 4 8th Rests

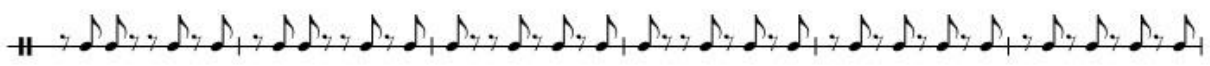
♩ = 100, 110, 120, 130, 140, 150, 160

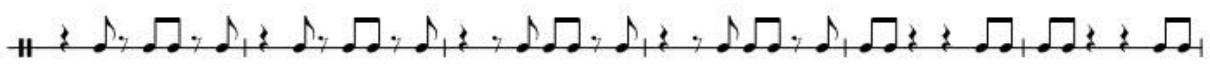
A



B

Cont. on next page >>>





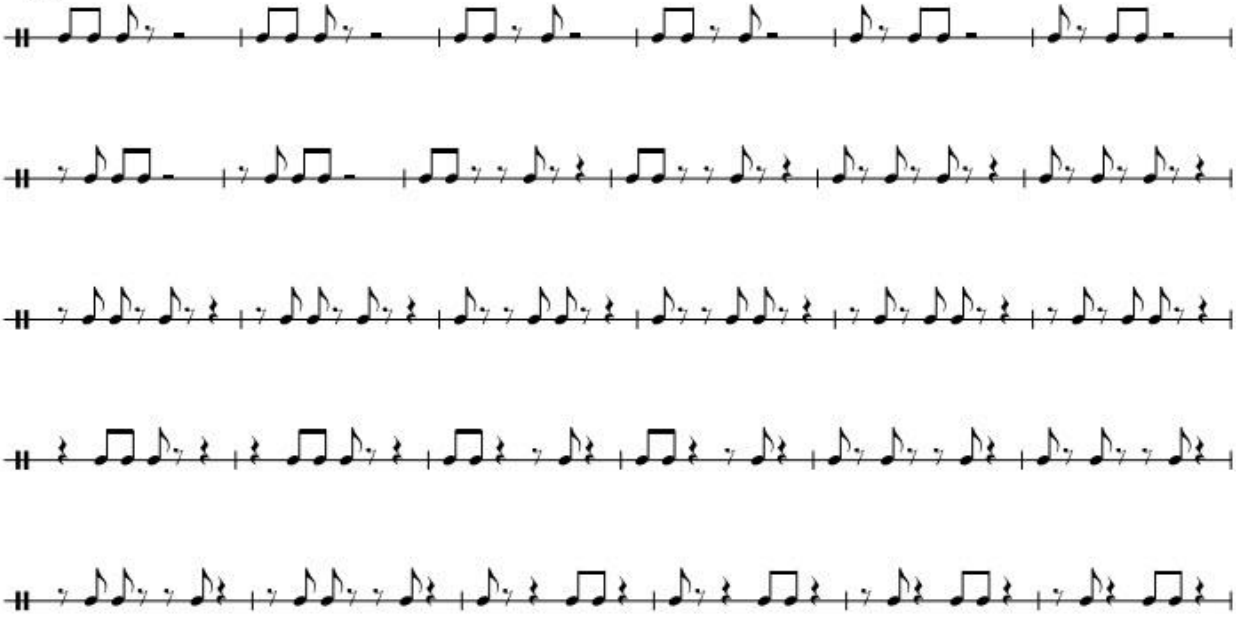
C

2-J EIGHTH NOTE TIMING

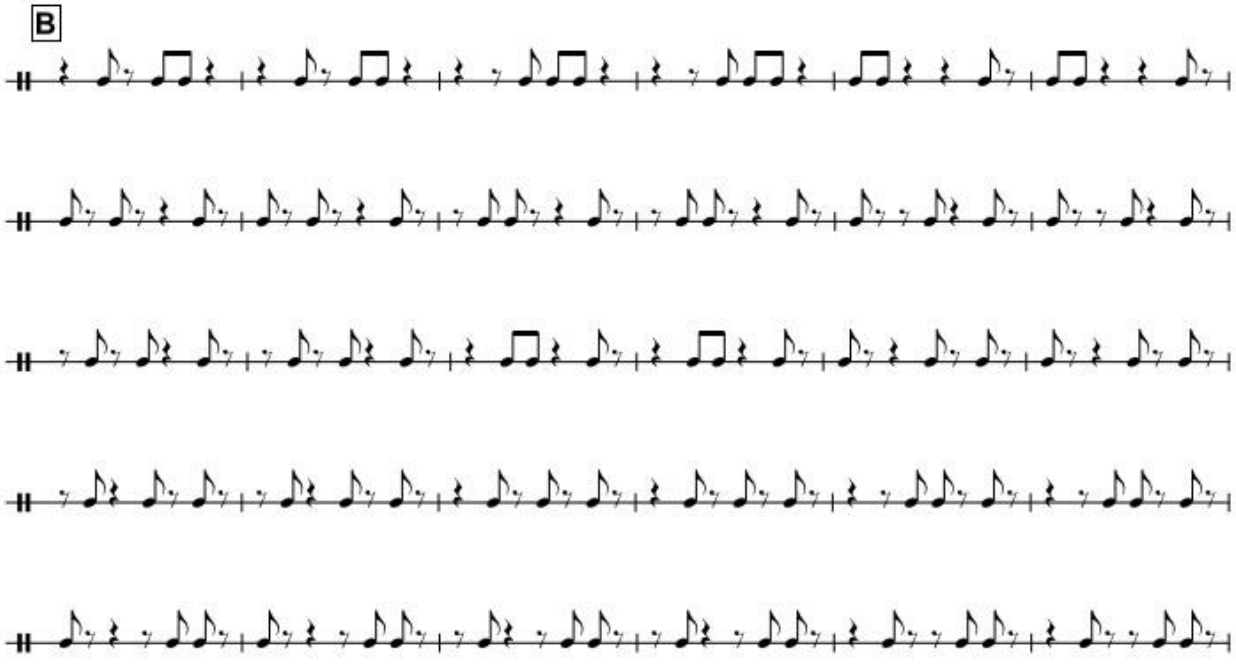
Patterns: 5 8th Rests

♩ = 100, 110, 120, 130, 140, 150, 160

A



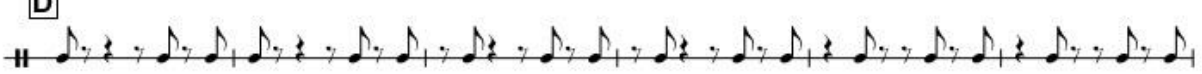
B

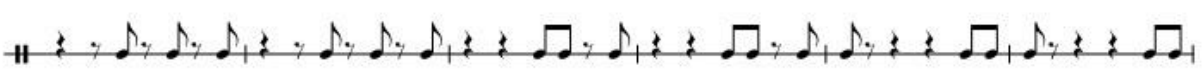


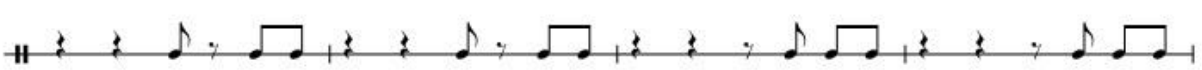
Cont. on next page >>>

C

D





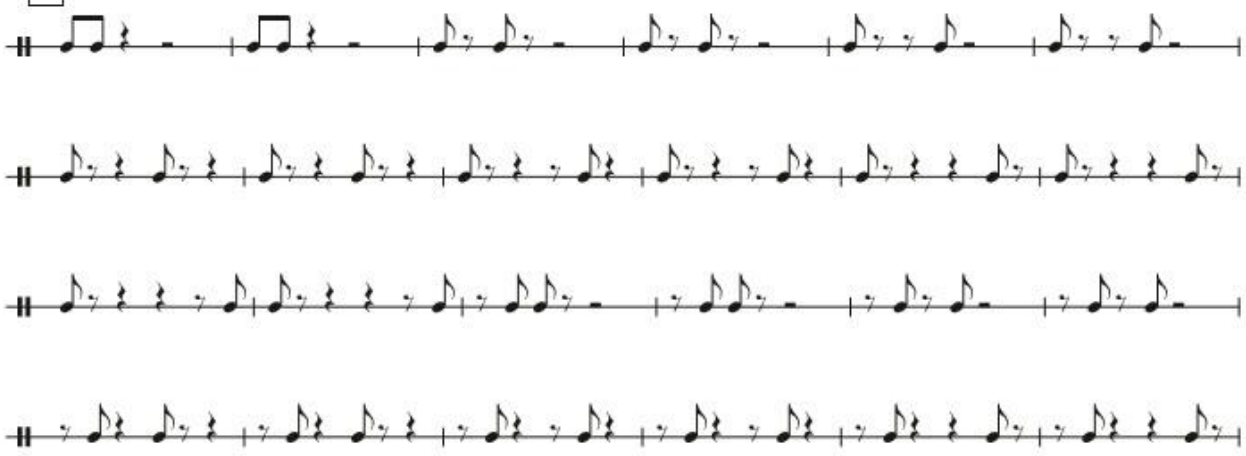


2-K EIGHTH NOTE TIMING

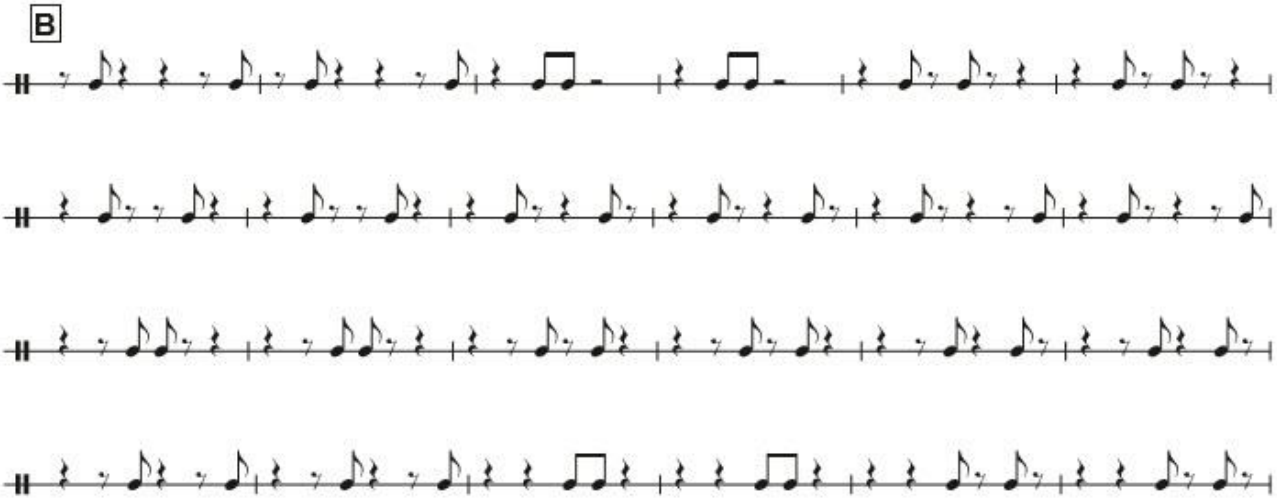
Patterns: 6 & 7 8th Rests

♩ = 100, 110, 120, 130, 140, 150, 160

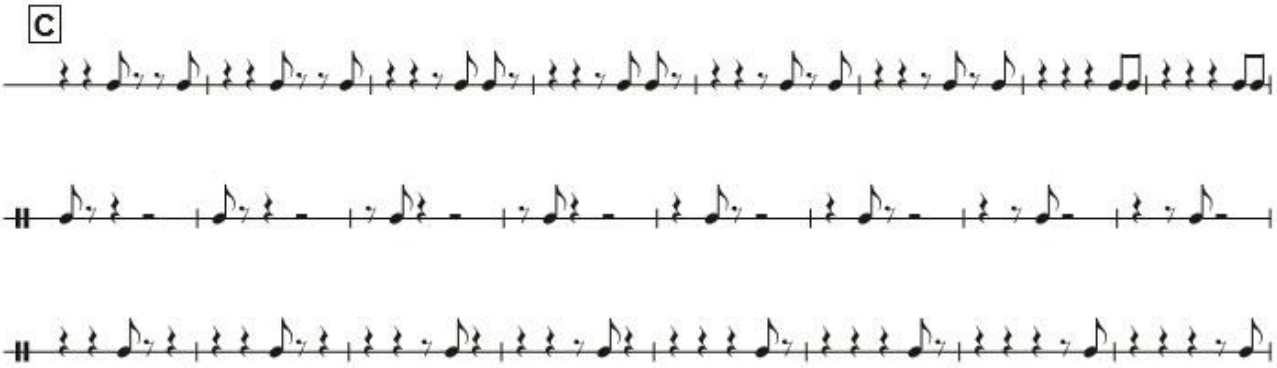
A



B



C

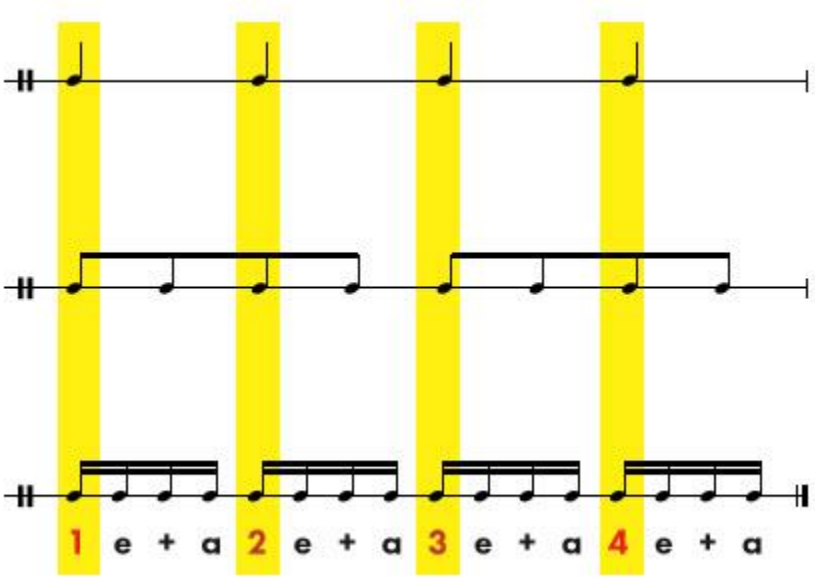


Eighth Note Timing

IMPACT PERCUSSION

COREY PEARCE
percussion

Just like two eighth notes fit into the space that one quarter note does, the same type of relationship exists between sixteenth notes and eighth notes. What this tells us is that as we attempt to accurately vocalize 16th note partials, we can use the "checkpoints" we've set up so far (the downbeat and upbeat), and simply insert the new note values between them.



As you can see, we call the sixteenth note between the downbeat of a count and its upbeat the "e," and the note between an upbeat and the next downbeat is referred to as the "a." Just like the vocalizations we've used up until this point, it's vital that you space them out evenly, with each downbeat lining up exactly with the click your time-keeping device is giving you, like so:

"ONE - e - and - a - TWO - e - and - a - THREE - e - and - a - FOUR - e - and - a"

click *click* *click* *click*

Every note type we've discussed so far has a rest counterpart that is equivalent in value to that note, and the sixteenth note is no exception. Here are the two placed side by side.

Let's very quickly review our process before we jump into an example bar that you can practice counting with.

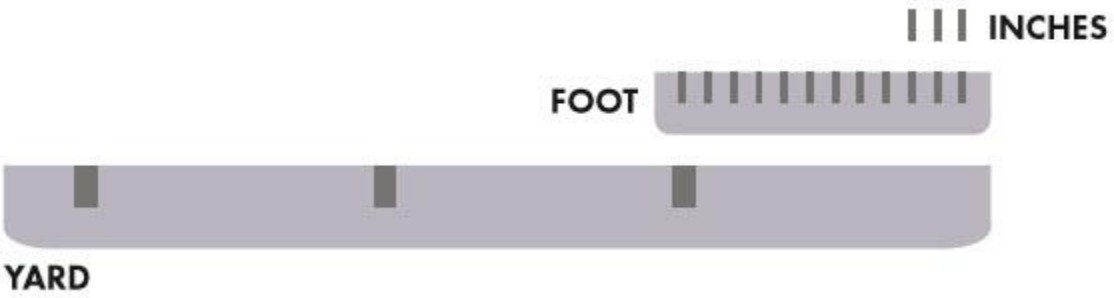
- You'll first identify which counts hold notes, and which hold rests.
- You'll vocalize the underlying rhythm to a metronome.
- Lastly, you'll play along to the counts with notes, and stay silent on the counts with rests.

Take a look at the next example bar.

As you've done before, take some time on your own to work through this measure, then proceed to the next page to see a visualization of how the playing, vocalizations, and clicks of the metronome should line up.

As we work with more and more notes, it can be easy to get overwhelmed with the density of a measure of music. In cases like this, it's useful to lower the tempo significantly so that you don't struggle as you attempt to gain a good understanding of the rhythm you're working with.

After all, the only thing that's changing as we look at finer subdivisions is that we're looking at smaller and smaller "units of measurement" so to speak. This is comparable to looking at feet within a yard, and then at inches within a foot.



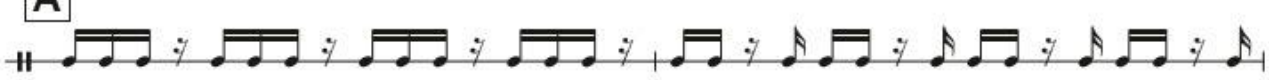
Work with the patterns on the next few pages to work on your affinity for sixteenth note and sixteenth note rest values. Pay attention to the slower range of tempo values you'll be working at. Again, if you need to go even slower than that, please feel free to do so. It is better to have high-quality rehearsal at a slower pace, then to rush through things and not gain a great understanding of the concept you're working on.

3-A SIXTEENTH NOTE TIMING

Gridding: One Rest

♩ = 60, 65, 70, 75, 80, 85, 90

A



B

C

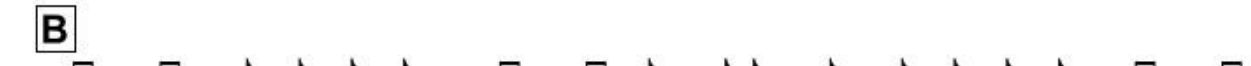
3-B SIXTEENTH NOTE TIMING

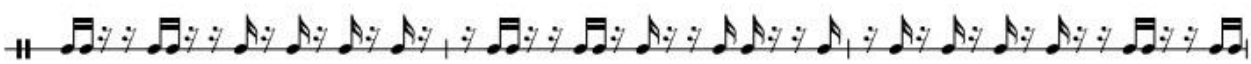
Gridding: Two Rest

♩ = 60, 65, 70, 75, 80, 85, 90

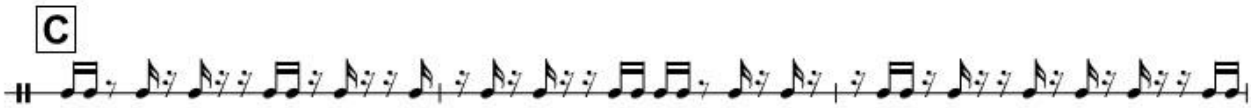
A

B





C

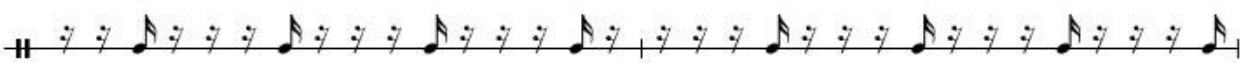


3-C SIXTEENTH NOTE TIMING

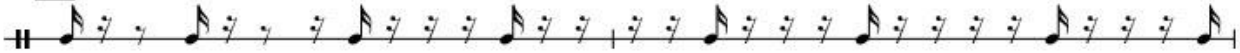
Gridding: Three Rest

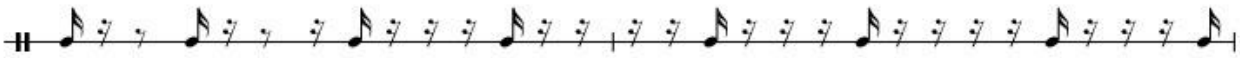
♩ = 60, 65, 70, 75, 80, 85, 90

A



B





C

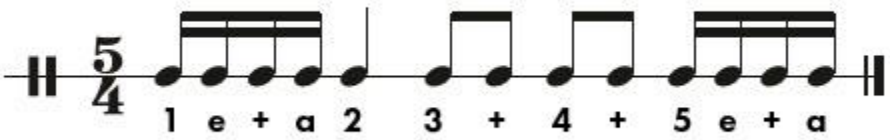
Time Signatures

IMPACT PERCUSSION

COREY PEARCE
percussion

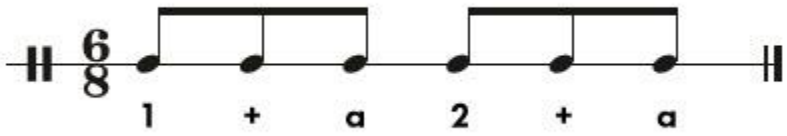
Up until this point, we've only been working with measures of music that are written in a time signature of 4/4, but as we discussed in the previous chapter of the Basics, music won't always be this neat and tidy. If you understand how to count rhythms in 4/4, however, there isn't a significant adjustment to be made when we switch the time signature up.

Let's look at a measure of 5/4, for example. The thing I want you to pay attention to is the way the time signature has changed our counting system, or rather, how little it's changed. All that's changed is that we're adding a count, or a metaphorical light-post, and we're counting to 5 instead of to 4. The rhythms on count 5 itself are not counted any differently, we're simply tagging them on to the 4 we've been counting till this point as part of one measure.



What about a more obscure time signature, like 6/8 for example? In this instance we've not only changed the number of beats from 4 to 6, but we've also changed the note value assigned to operate as the beat; an eighth note instead of a quarter note. Let's look at what this means by filling up a bar with 6 8th notes.

Usually, a bar of 6/8 involves grouping 6 eighth notes into 2 sets of 3 notes, with the first and fourth notes serving as the strong beats. This measure would therefore be counted like this.

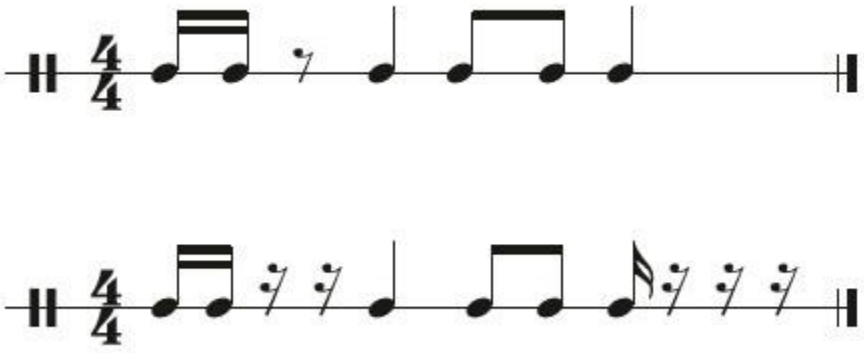


Of course, you can't be faulted for not knowing this, because without beaming, it's virtually impossible to tell what the composers' intentions are in terms of note groupings in odd timing signatures, especially if you're seeing them for the first time. You've already seen beaming in action, but just to formally define it, it's the horizontal lines connecting 8th note and finer subdivisions together.

Beyond grouping notes together, beaming also gives us an opportunity to simplify some of the writing we've looked at today.

Equivalence of Rhythms

Take a look at the next two example measures on this page. Count the music out and see if you can recognize something interesting about these bars.



You should've found that although the markings we used for each measure are different, the overall counts of music are the same. If a percussionist were to play through both on a snare drum, the performances would be identical. And herein lies what I call the equivalence of rhythms. The math behind the music allows us to switch between the way we write note and rest values if they're equivalent in terms of the space they hold up. 2 sixteenth note rests can be rewritten into an 8th note rest, 1 sixteenth note followed by three sixteenth note rests can be rewritten as a quarter note, and vice versa. The ability that music has of being compounded and divided up in this way is what makes the combination of rhythms virtually infinite.

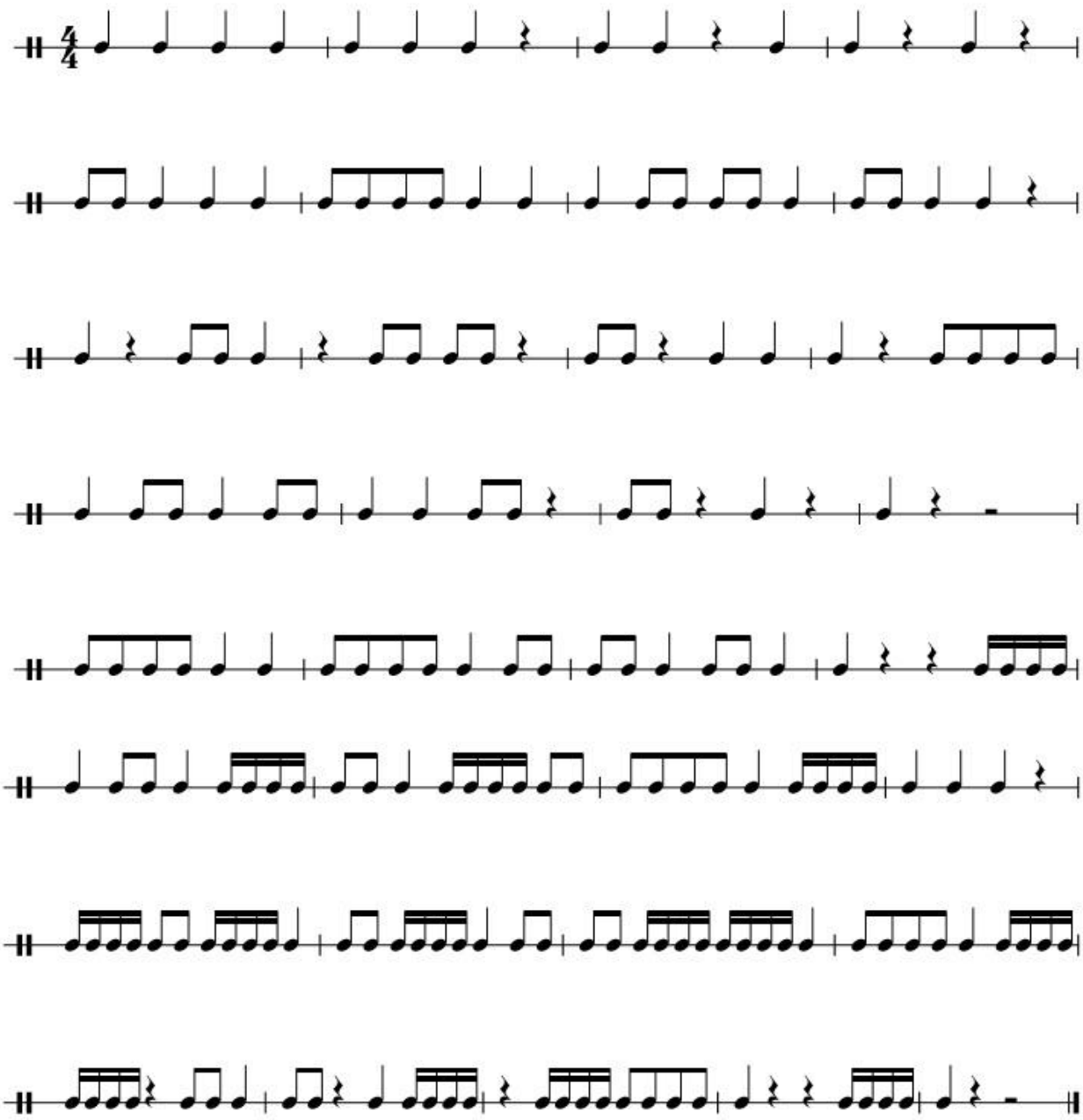
Putting It All Together

At this point, we've touched a lot of different topics, including timing, how to count a few different note and rest values, as well as how time signatures fit into our counting system. It's now time to bring them together. On the next three pages, you'll find some etudes that insert different note subdivisions into the same measure as well as some time signatures that aren't 4/4. This is the part of the process we're you've learned how each "puzzle piece" works individually, and the time has come to string them together in different combinations to create music. All of the rehearsal techniques we've discussed so far should still apply as you attempt to create these bigger pictures.

E-1 **PRACTICE ETUDES**

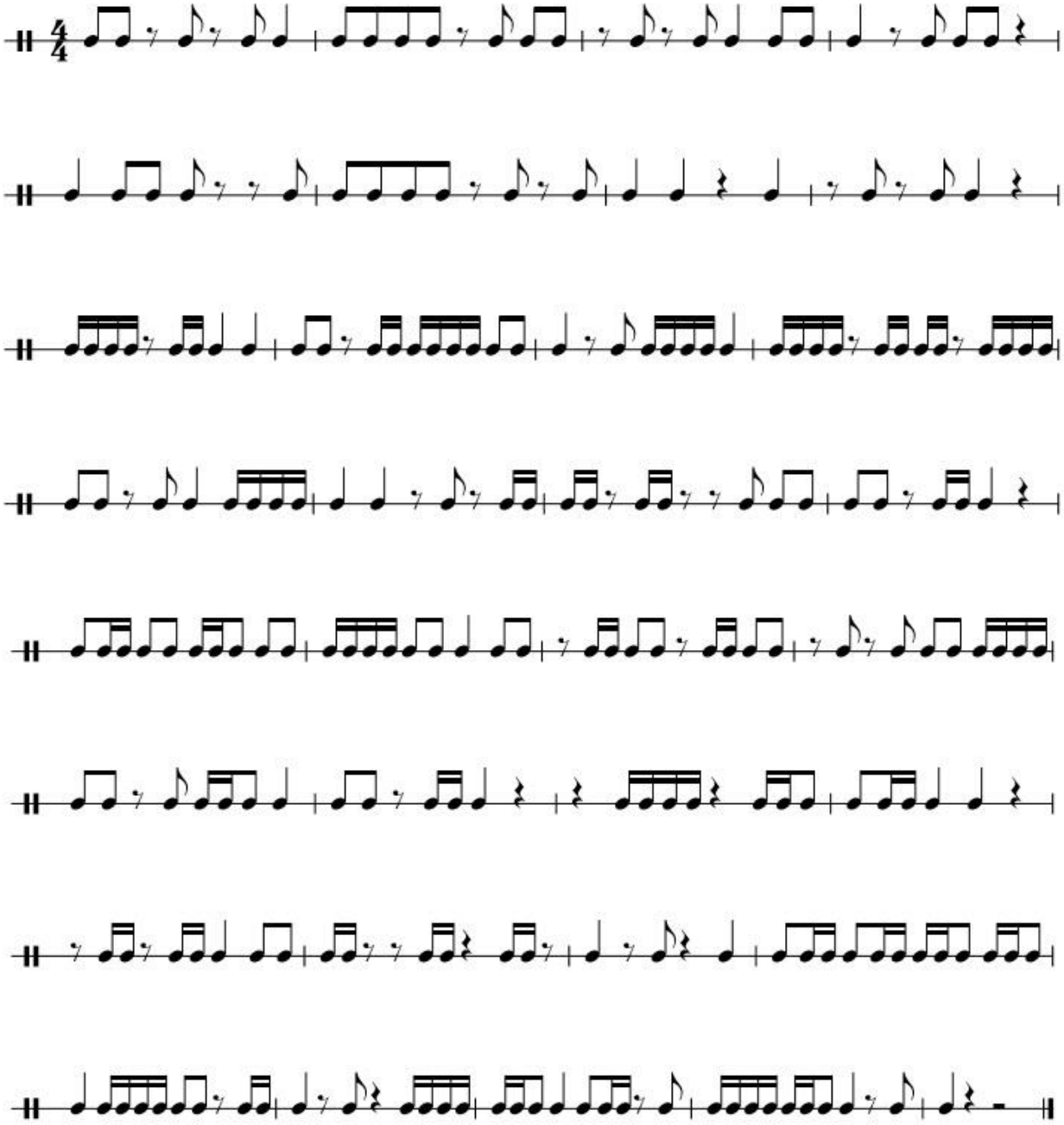
Etude 1

♩ = 70, 75, 80, 85, 90, 95, 100



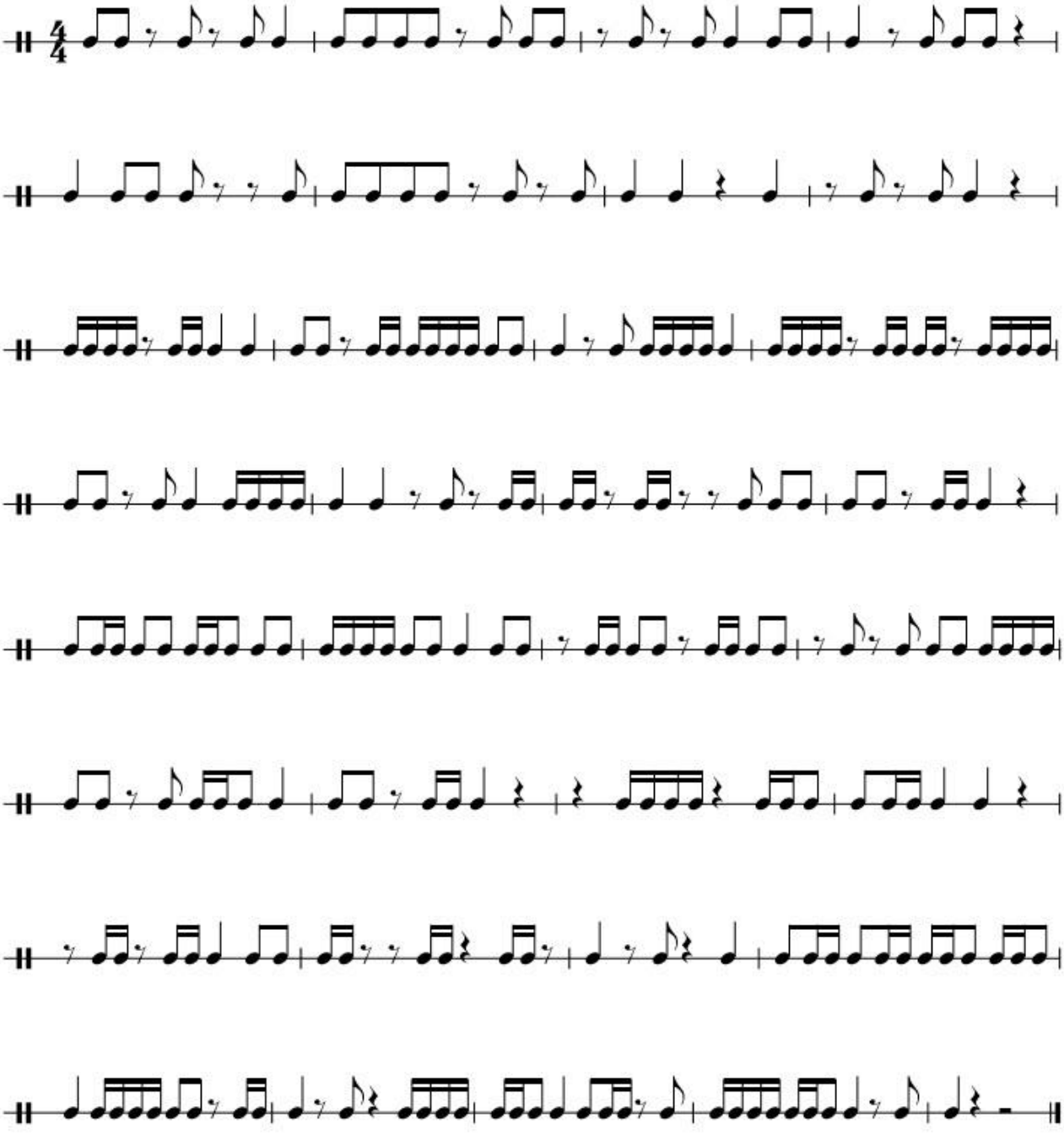
Etude 2

♩ = 70, 75, 80, 85, 90, 95, 100



Etude 3

♩ = 70, 75, 80, 85, 90, 95, 100



For more support on this Theory Package including;

Videos

Play Along Tracks

PowerPoint Lessons

Please go to

www.impactpercussion.ca

IMPACT PERCUSSION