

Rhythm 2

Music Fundamentals

14-119-T

At this point, you should understand the concepts of tempo and rhythm. To review, rhythm is simply the interruption of silence with sound. For this lecture, we are going to discuss how composers start and stop sound. In other words, we will now begin to study the mechanics of rhythm.

Starting Sound:

In music, sound is started by placing a note in the staff [see figure 1]. As we know, notes tell us what the pitch is to be for *pitched instruments*. These are instruments that produce a determinate pitch, for example, the piano or voice. But we also have *unpitched instruments*, or instruments that do not give us a discernable pitch. These instruments include percussion instruments like snare drum and slap stick. In other words, unpitched instruments don't change pitch.

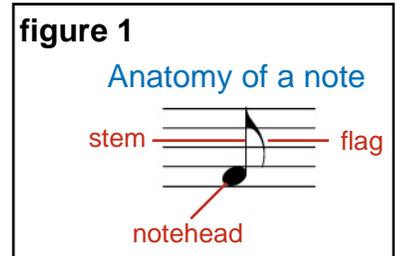


figure 2

Note Values

	whole note
	1/2 note ("half note")
	1/4 note ("quarter note")
	1/8 note ("eighth note")
	1/16 note ("sixteenth note")
	1/32 note ("thirty-second note")

Regardless of the instrument, every instrument must be told when and how long to make a sound. In other words, notes not only tell us the pitch to be played, but also how long the note will last. We have many different types of notes that determine the length [see figure 2].

Despite the tempo or anything else, a **whole note** is always equal to two **1/2 notes**. A **1/2 note** is equal to two **1/4 notes**, and a **1/4 note** is equal to two **1/8 notes**. A common cliché people say is, "music is really math." Of course this statement is an oversimplification, but when we deal with rhythm, addition and subtraction becomes important. Following the formula above, we can easily determine the number of **1/8 notes** in one **whole note** (8). We can also see that there are four **1/4 notes** in a **whole note**. The vertical diagram below should help make this formula more clear.

Whole note	1				
1/2 note	2	1			
1/4 note	4	2	1		
1/8 note	8	4	2	1	
1/16 note	16	8	4	2	1
1/32 note	32	16	8	4	2

To read the diagram above, notice that one **1/2 note** is equal to two **1/4 notes**, or four **1/8 notes**, or eight **1/16 notes**. Also, the length of one **1/4 note** is two **1/8 notes**, or four **1/16 notes**. Using the diagram, we can also determine that one **1/8 note** and two **1/16 notes** will equal one **1/4 note**. This knowledge will become much more important later when we discuss *time signatures*. However, for now we need to realize that each note has a specific length in real-time depending on the *tempo* of the music. If we re-examine an example from our previous lecture, the metronome indication begins to make more sense [see figure 3].

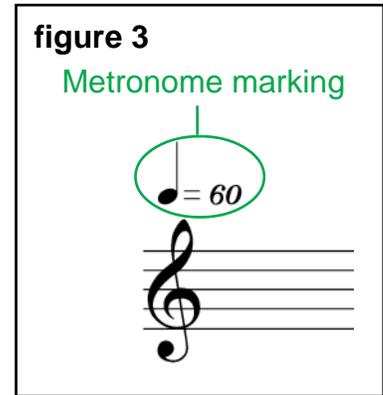
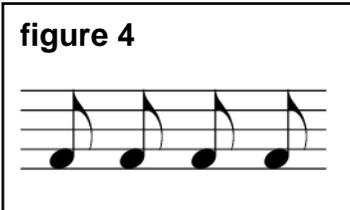


Figure 3 shows a metronome marking that indicates there will be 60 quarter notes every minute, or in other words, one **1/4 note** per second. Remember, this is the tempo – not the rhythm. If our rhythm consists of four repeating **1/8 notes** [see figure 4], then each **1/8 note** lasts .5 seconds, or sound starts every 1/2 second. Thus, figure 4 lasts two seconds. The “disruption of silences” begin every 1/2 second in figure 4, but we can also say the length of figure four is two beats, where the beat is the **1/4 note**. We can also say that this example spans the length of a **1/2 note**, or 1/2 of a **whole note**. There are numerous ways to describe the rhythm, in relationship with the tempo, of figure 4!

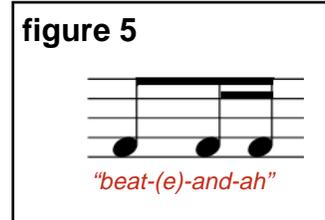


How do we implement this knowledge? Probably the easiest way is to tap your foot once every second. Use a second hand on a clock to help you maintain a steady beat. After you start the beat, and maintain its steadiness, say “tah” every time your foot touches the floor and every time it is at the top of the rebound. For example:

Beat-	1/4 note		1/4 note	
Rhythm-	<u>1/8 note</u>	<u>1/8 note</u>	<u>1/8 note</u>	<u>1/8 note</u>
Foot movement-	down	up	down	up
Speak-	“tah”	“tah”	“tah”	“tah”

In the example above, we have divided the beat by two. True multi-taskers, musicians must be able to count in their head, while at the same time produce sound. For the example above, you should try to count in your head, “*beat – and – beat – and.*” We also divide the quarter note into four equal segments. If the beat is the **1/4 note**, as above, this means we will divide the beat with four **1/16 notes**. Once again, please note that the beat remains constant! To count four **1/16 notes** within a beat, think, “*beat – e – and – a.*” for each beat. Notice that “and” will be in the same place of the beat as the example of **1/8 notes** above. In fact, musicians often refer to a place in music as the “and” of a certain beat. While rehearsing, it is common to hear a musician say, “let’s start on the ‘and’ of four.” At this point, you may not know what is meant by four, but we know that it will be the second **1/8 note** in that beat!

Of course rhythm in music is generally more complex than repeating 1/8 notes. Knowing the length of notes in relationship to the beat will allow us to create more complex rhythms [see figure 6]. In this example, a new term is being introduced called beaming notes. Since the 1/4 note is the basis of our beat, we beam notes together to indicate the length of the beat. We do this only to make the notation easier to read [figure 5].

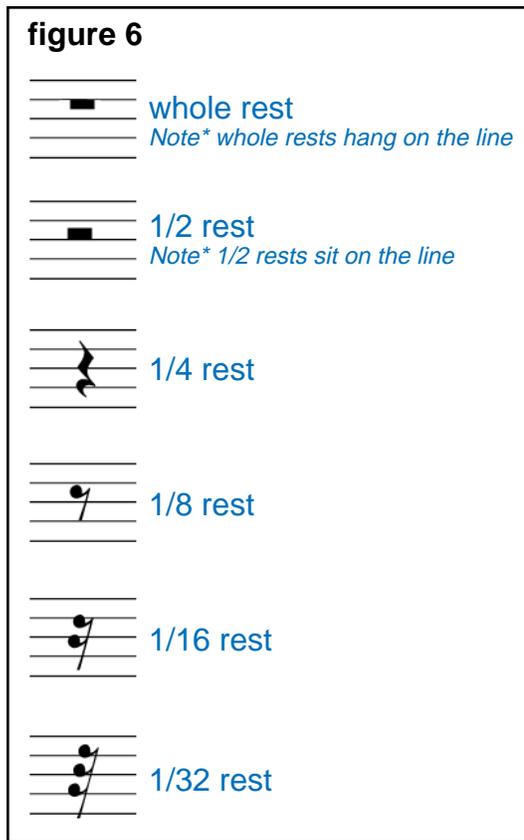


In figure 5, each beat consists of one **1/8 note** and two **1/16 notes**. Just as the **1/16 note** in figure 2 has two flags attached to it, the **1/16 notes** in figure 5 have two beams.

To help you vocalize rhythms, start by setting the beat to 72 beats per minute. You will find this easier with a metronome. You can find an online metronome in the Labs section of this course. To use the online metronome, simply use the “+” and “-” buttons to change the tempo. Once you have the set the metronome, begin by tapping your foot to the beat. This time follow the pattern below to vocalize the rhythm.

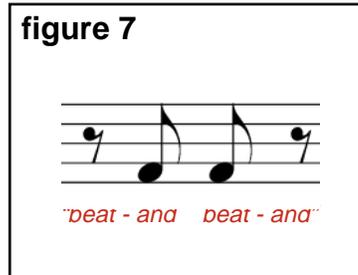
Beat-	1/4 note		
Rhythm-	<u>1/8 note</u>	<u>1/16 note</u>	<u>1/16 note</u>
Foot movement-	down	up	1/2 way down
Speak-	“beat”	“and”	“ah”

Finding the silence in rhythm:



Just as musicians must make sound, they must also stop sound. Since rhythm is the *disruption of silence*, then it only makes sense that without silence, we couldn't have rhythm! For this, we use symbols called, *rests*. They work in the same way as notes that make sound [see figure 6].

Let's try out our knowledge of rests by modifying an example from above [see figure 7]. Instead of having four repeating 1/8 notes, let's slip a few rests into the example. Set your metronome to 72 bpm (beats per minute) and begin (repeat it a couple of times):



Beat-	1/4 note		1/4 note	
Rhythm-	<u>1/8</u>	<u>1/8</u>	<u>1/8</u>	<u>1/8</u>
Foot movement-	down	up	down	up
Speak-	DON'T SPEAK!	"tah"	"tah"	DON'T SPEAK!

Congratulations, with this knowledge, you can do 90% of all rhythmic patterns ever written. In the next lesson, we will further explore the organization of rhythm.