

Introduction to Music Theory and Rudiments

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This book will help musicians learn some of the basic rudiments and theory used by countless musicians all over the world. These basic theory skills can help in understanding music and can be used to communicate with other musicians verbally and when writing music on paper.

Here is an example of sheet music. Click each question mark on it to see what performers read.



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Basics of Printed Music



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Video 0.1 Basics of Printed Music [Video transcript – [See Appendix B 0.1](#)]

Throughout the book, you will find a variety of interactive features. Words that are found in red, like **pitch**, can be clicked on for a definition. Other interactive features, such as slide shows and questions for the reader to answer, can be made full screen by clicking the full-screen button.

PART I
NOTATION BASICS

I. The Staff, Grand Staff, and Clefs

A staff is a series of five lines and four spaces on which music can be written.

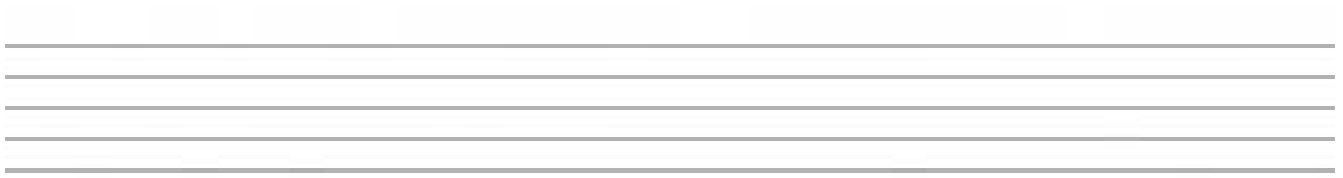


Figure 1.1 A staff.

When combined with a clef, the staff is used to determine **notes** and **itches** used in music. While there are many different clefs, we will be focusing on the two most commonly used clefs, the treble and bass clef.

The treble clef, also known as the G clef, is commonly used to create and identify **notes** and **itches** that sound higher whereas the bass clef, also known as the F clef is used to create and identify lower sounding **notes** and **itches**.

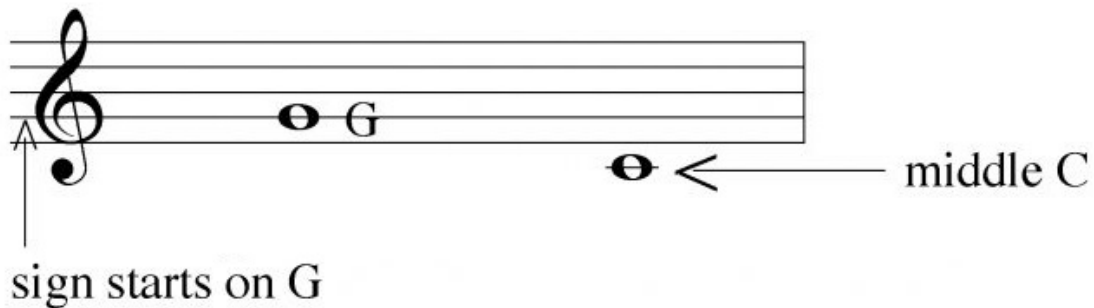


Figure 1.2 Treble clef. [Image description - [See Appendix C Figure 1.2](#)]

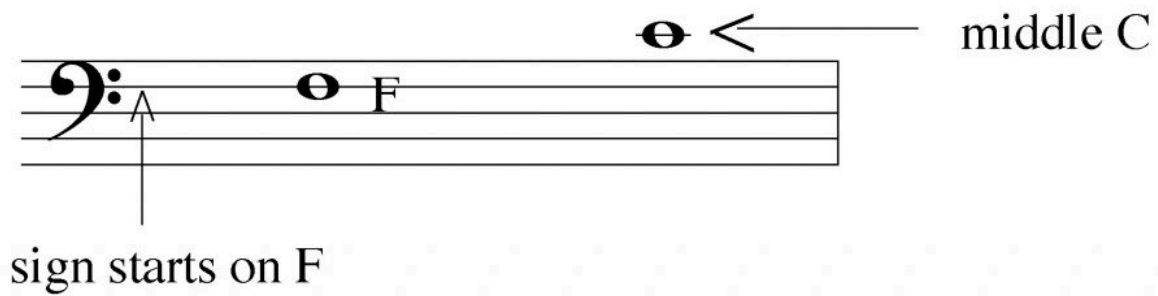


Figure 1.3 Bass clef. [Image description - [See Appendix C Figure 1.3](#)]

While both clefs are used independently, a common use in music theory is to combine the two staves and clefs into what is referred to as the grand staff.

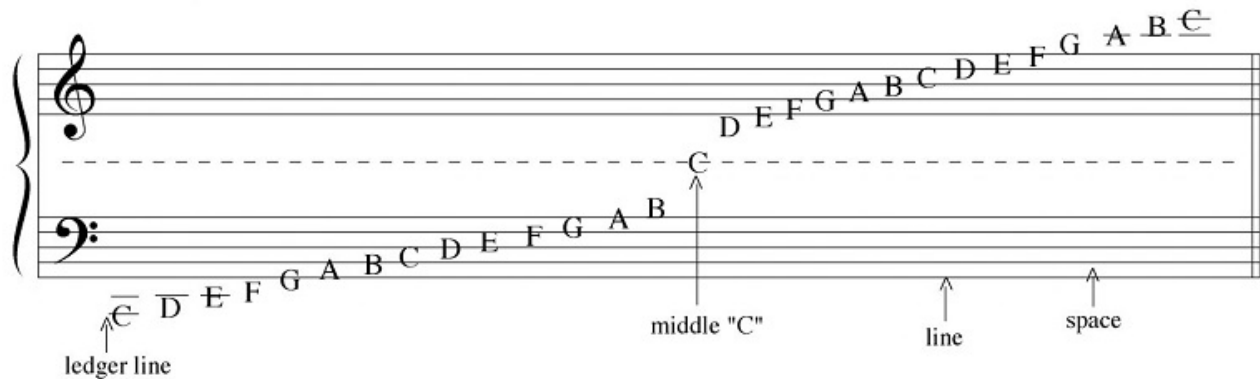


Figure 1.4 Grand staff. [Image description - [See Appendix C Figure 1.4](#)]

The grand staff combines the treble and bass clefs to allow musicians to write and identify notes from low to high **pitch**. Notes can be written on the lines of the staff, in the spaces between the lines, or above or below the staff using ledger lines.

2. Notes and Clefs

When naming and identifying notes on a staff, it is important to recognize that the clef is what determines where notes are placed on the staff. Notes are named based on their placement on the staff using the musical alphabet: A, B, C, D, E, F, and G.

Click through the following slides to learn more. If you see a blue information icon, click to read for more information. You can also click the icon at the bottom right to view it in full-screen mode.



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Exercise



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Notes written on the staff always consist of a note head and often have a stem and sometimes even a flag or beam.

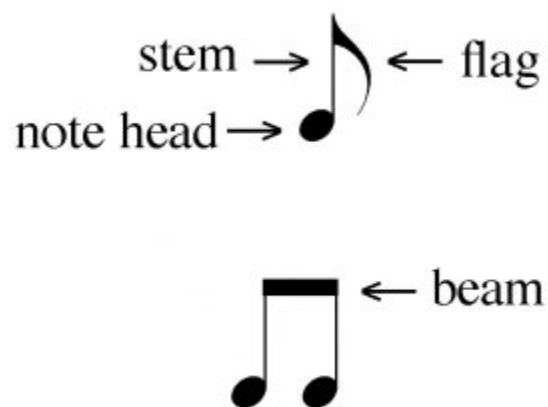


Figure 2.1 The anatomy of a note.

Flags are added to notes to indicate how long or short a note is to be played (see Chapter III). Stems can point both up or down. Notes that are below the centre line have their stem on the right-hand side of the note head and point up, whereas notes above the centre line have their stem on the left-hand side and point down.



Figure 2.2 A note below and a note above the centre line.

Exercises



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3. The Piano Keyboard

The piano keyboard is a useful tool for music theory as it provides a visual guide that can be used to discuss notes. The musical alphabet used can be visualized on the piano keyboard. The easiest way to identify the notes is to use the black keys on the keyboard as reference points. The black keys on the piano keyboard are found in groups of twos or threes, and we can use the groupings to help identify the white notes.



Figure 3.1 Piano keyboard with musical letters noted on the white keys.



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Exercise

Complete the following exercise.



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4. Accidentals and Enharmonics

The seven letters of the musical alphabet name the seven white keys on a piano (as shown in the red rectangles below).

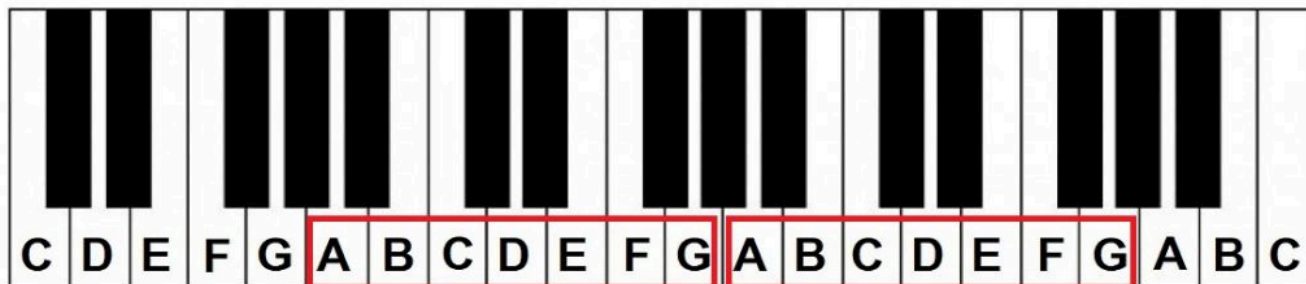


Figure 4.1 The musical alphabet.

To describe and identify the black notes on the piano, we need to use accidentals. Accidentals are symbols placed directly before a note that modifies the note. The three most common types of accidentals are sharps, flats, and naturals.

When a sharp (#) is placed before a note on the staff, we modify the note by playing it one semitone higher than the original note. A semitone is the smallest available distance between two pitches in music coming from the Western tradition. While there are quarter tones and microtones found in other genres and traditions, Western music theory focuses on the semitone as the smallest available distance.

When a flat (b) is placed before a note on the staff, we modify the note by playing it one semitone lower than the original note.

When writing the note names using letters, the sharp or flat comes *after* the letter name.



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When a natural (♮) is placed before a note, we ignore any accidentals or key signatures (see chapter II) and play the note as it appears on the white keys of a piano.

Because we can raise or lower a note by a semitone using accidentals, it is possible to have multiple names for the same **pitch**.

Exercise




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<https://openbooks.macewan.ca/intromusictheory/?p=60#h5p-7>

5. Dynamic Markings, Articulations, and Slurs

In addition to notes and accidentals, the staff can contain much more information about how the music written on the staff should be performed.

Dynamic markings

Go through the following slides to learn more. Click the arrows to turn pages, or click the three blue lines at the left top corner to show or hide the table of contents, or you can click the icon  at the right-top corner to view it in full-screen mode. If there is a sample clip, you can click the play icon to play it.



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Articulations

Articulations are symbols that indicate how a note should be played.

Articulations are placed on top or below the note head. Smaller symbols, such as a **staccato**, can be placed in the staff, whereas larger symbols, such as a *marcato*, should be placed outside the staff.



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Slurs

Slurs are curved lines appearing above or below two or more notes indicating that they are to be played *legato*.



Figure 5.1 A slur.

6. Repeats

There are a variety of symbols used in music that allow a section or sections of music to be repeated. The simplest are repeat signs. Placed on the staff and the beginning and end of the repeated section, using repeats signs allows for a section to be repeated as many times as needed.

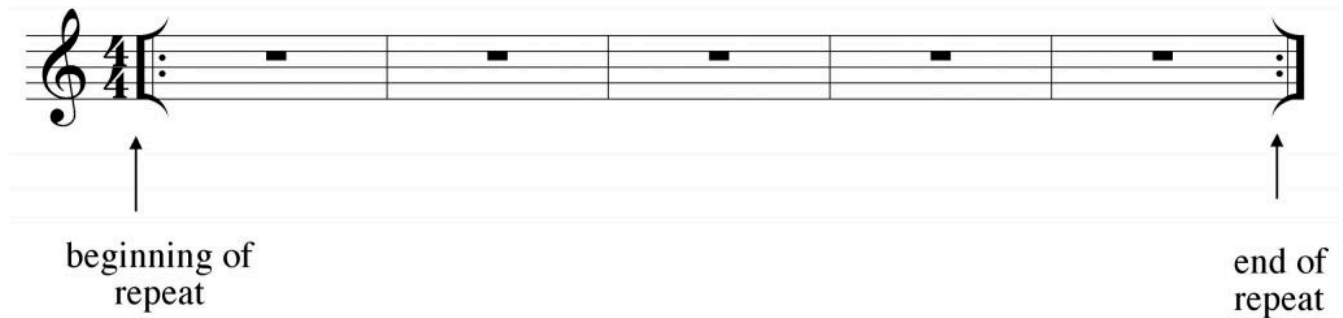


Figure 6.1 [Image description - [See Appendix C Figure 6.1](#)]

While the default is to play the repeated section two times total, when indicated properly, repeat signs can be used to repeat a section as many times as needed or desired.

In many cases, a repeated section may differ slightly at the end of the phrase. When this occurs, repeat signs with first and second endings can be used.

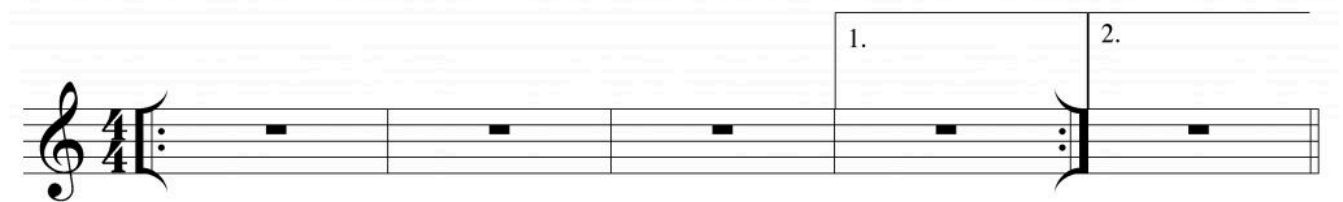


Figure 6.2 [Image description - [See Appendix C Figure 6.2](#)]

In the example above, the first four bars are performed, then the first three bars are performed before jumping to the second ending.

D.S. and Coda symbols are used to repeat large sections of music and when repeat signs can't be used or have already been used within the desired repeated section. DS, which is short for **Dal Segno**, means to go to the sign ($\text{\textcircled{S}}$). After the performer has jumped back to the sign, there are numerous options for how to proceed from there.

D.S. *al fine* means go back to the sign and play until you see the word *fine*, which means finish.

D.S. *al coda* means go back to the sign until you arrive at the coda bug, then jump to the new section labeled with another coda bug and the word Coda.

The image shows four musical staves, each with a treble clef and a 4/4 time signature. The first staff is labeled 'A' and contains a first ending symbol (a double bar line with a diagonal slash) and a repeat sign (two dots). The second staff is labeled 'B' and contains a second ending symbol (a double bar line with a curved line) and a repeat sign. The third staff is labeled 'C' and contains a first ending symbol and the instruction 'D.S. al Coda'. The fourth staff is labeled 'Coda' and contains a Coda symbol (a circle with a cross) and a repeat sign.

Figure 6.3 [Image description - [See Appendix C Figure 6.3](#)]

The last type of repeat you will see is D.C., which is an abbreviation for *Da Capo*, meaning go back to the start of the piece. Similar to D.S., D.C. can be paired with a *fine* or a *Coda* to allow for any type of repeat.

7. Quiz I

Complete the following questions to test your learning in this chapter. Click the arrows at the bottom to move to or back to questions.



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PART II
KEY SIGNATURES AND SCALES

8. Major Scale

A scale is a series of pitches generally confined to the span of one **octave**. All scales are named by identifying the first note of the scale (the root of the scale) and the type of scale. An easy way to think of it is to start on a note and move up the musical alphabet until we get back to our starting note. While there are numerous types of scales, the most commonly used one in Western music, and the one that is the most useful when studying music theory, is the major scale.

The major scale is a series of semitones and whole tones (two semitones placed together) that form a pattern within an octave. The image below shows the pitches and note names of C major scale, as well as the pattern of whole tones (shown with a 1) and semitones (shown with a 1/2). It also shows the scale degree of each note, meaning its relative position within the scale.

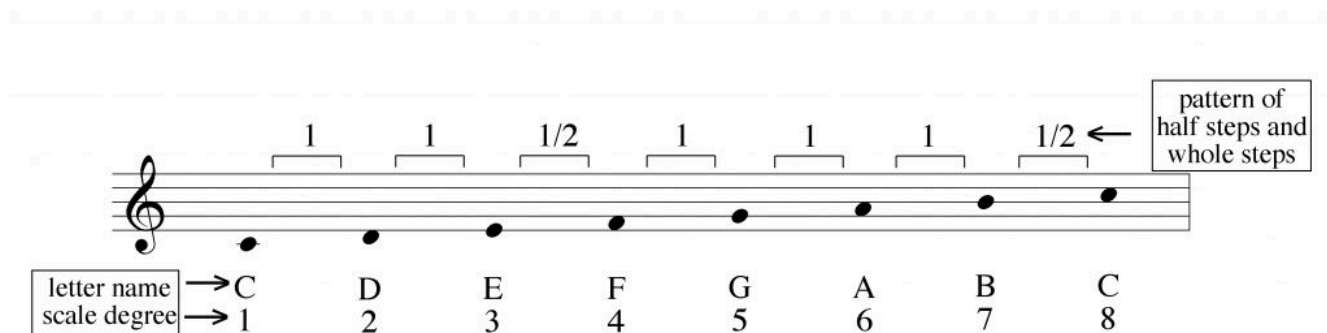


Figure 8.1 [Image description - [See Appendix C Figure 8.1](#)]

Here is an example of what C major scale sounds like:



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<https://openbooks.macewan.ca/introtomusictheory/?p=37#audio-37-1>

When examining the C major scale, we can identify a pattern of *whole tone*, *whole tone*, *semitone*, *whole tone*, *whole tone*, *whole tone*, and *semitone* between each scale degree and the next. This pattern is true of all major scales, regardless of which note they start on. While C major consists of all the white notes on a piano keyboard, major scales starting on other notes will have a mix of white and black notes.



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When looking at the C major scale on a piano keyboard, we can see that every time there is a whole tone in the scale, there is a black note between the two white notes being used in the scale. This is because as the semitone is the smallest distance between two notes; it is also the distance between two keys on the piano, regardless of colour. We can see the semitones found between E and F, as well as B and C. We can clearly see that there isn't a black note between the white keys, which helps identify the semitones on our major scale.

To create a major scale starting on G then, we have to re-examine the pattern of tones and semitones and modify to create the correct pattern.



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We can see that, while the scale starts correctly, the pattern of tones and semitones deviates from the needed pattern for a major scale after we reach E, or the sixth-scale degree. The distance between the 6 and the 7 should be a whole tone, and currently it is only a semitone. In order to correct this, we need to raise the 7 by one semitone, meaning F to F#, which then not only creates the whole tone needed between the 6 and the 7 but also creates the semitone needed between the 7 and the 8.

If we listen carefully, we can hear that it doesn't sound correct:



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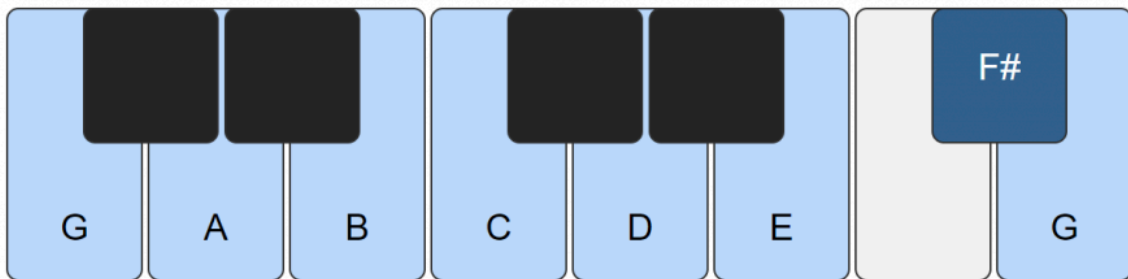


Figure 8.2 [Image description – [See Appendix C Figure 8.2](#)]

Now that the F has been raised with a sharp, the scale sounds correct.



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When starting this process again, but this time starting on F, we can see that the pattern of tones and semitones deviates much earlier in the scale than when starting on G. From A (3) to B (4) is a tone rather than the needed semitone.

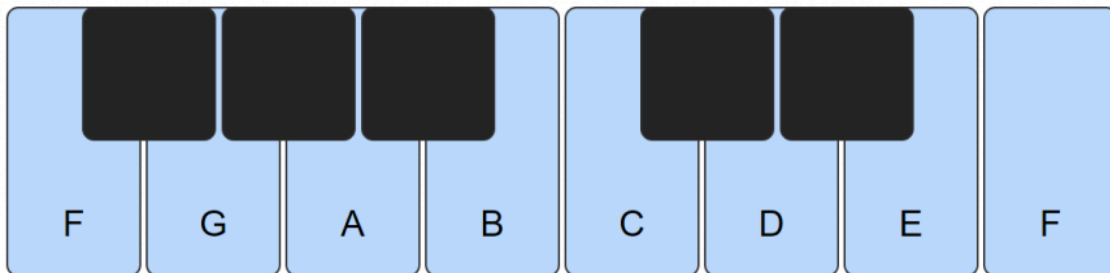


Figure 8.3



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We can hear that the scale currently doesn't sound like a major scale.

Because the distance between A and B is currently a tone, the B needs to be lowered to a B \flat to create the needed semitone. Similar to the G major scale needing the F to be raised, this change not only corrects the error between the A (3) and B (4), but it also creates the proper distance between the B (4) and the C (5).

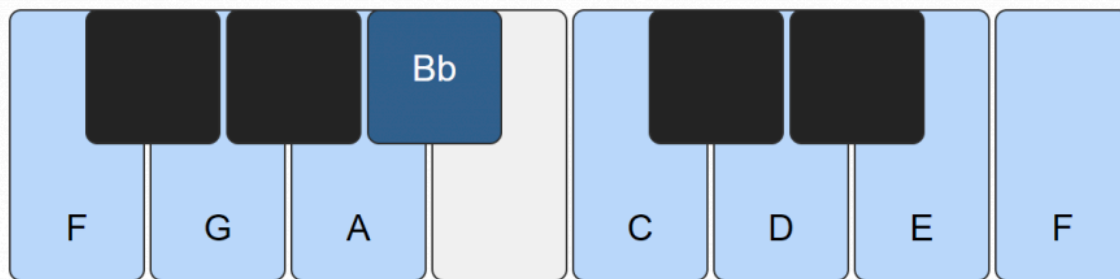


Figure 8.4 [Image description - [See Appendix C Figure 8.4](#)]

Now that the B has been lowered, the scale sounds correct.



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Exercises



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An interactive H5P element has been excluded from this version of the text. You can view it online here:
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While it is possible to create all the major scales using this pattern of tones and semitones, it is much more beneficial and faster to use and memorize the major key signatures.

9. Intro to Key Signatures

A key signature is a series of sharps or flats presented at the beginning of a section or piece of music that identifies the notes and pitches most likely to be found in the music. The major key signatures reflect the notes and pitches needed to create the major scales.

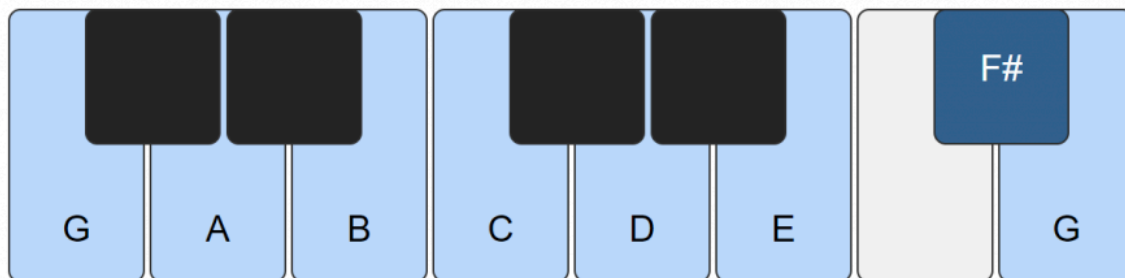


Figure 9.1 [Image description - [See Appendix C Figure 9.1](#)]

Rather than placing a sharp or a flat before every F in the key of G major, we can accomplish the exact same sound by placing an F# right beside the clef, creating a key signature. The scale above and the scale below sound EXACTLY the same.



Figure 9.2 [Image description - [See Appendix C Figure 9.2](#)]

When a sharp or flat is added to the key signature, it applies to all the notes with the same name, regardless of where they appear on the staff. In the example below, both of the Fs would be F#s.

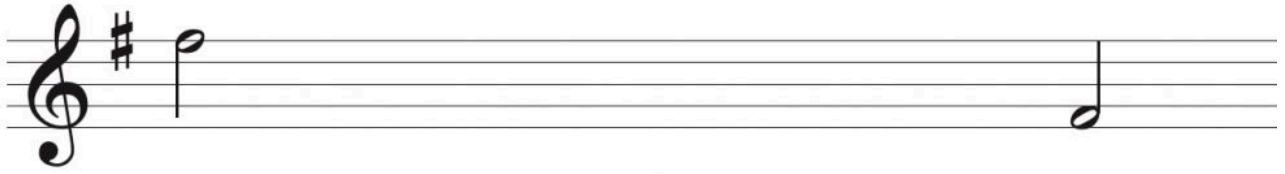


Figure 9.3

Using a key signature makes reading music much easier. Examine the following short example:



Figure 9.4 In this example, there are multiple sharps added to every measure, making it challenging to read.



Figure 9.5 In this second example, the sharps needed are all part of the key signature (E major), making the music easier to read. [Image description – [See Appendix C Figure 9.5](#)]

10. Major Key Signatures

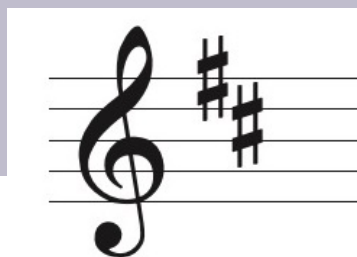
Major Key Signature for Sharps



Figure 10.1 [Image description – [See Appendix C Figure 10.1](#)]

When identifying or trying to memorize the major key signatures that have sharps in them, a useful “trick” is to look at the last sharp added (meaning the sharp found on the farthest right of the key signature) and go up one semitone. The note found one semitone above the last sharp added will always be the name of the major scale associated with that key signature.

Example



For example, in the key signature with 2 sharps, the C# is the furthest to the right. One semitone higher than C# is D, and D major is the correct major scale.

The sharps appear in a specific order and position in the key signature. A mnemonic device is used to help remember the order of the sharps. This can be helpful when writing a key signature down by hand or for quickly remembering which notes are sharp in a key signature. The mnemonic device is:

- Father
- Charles
- Goes
- Down

And

Ends

Battle

Major Key Signature for Flats

For major key signatures that have flats, the flats and the order of the flats differ from the sharps.

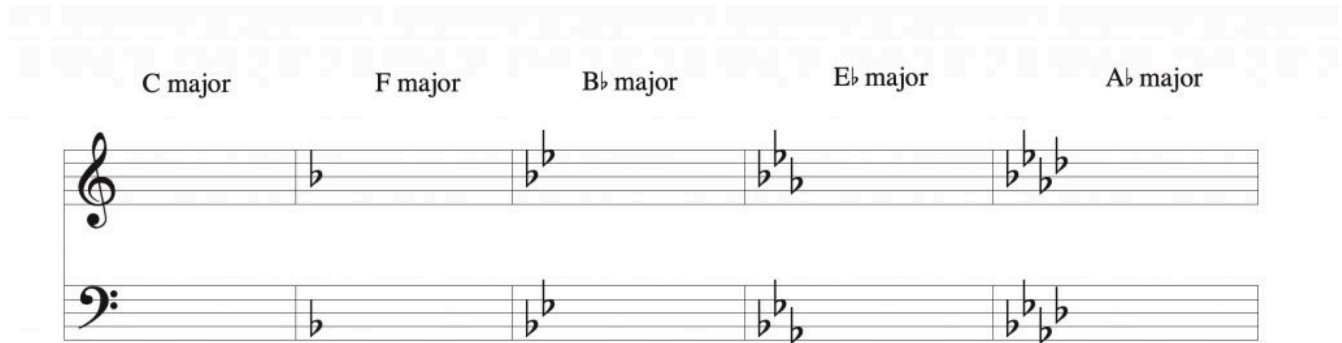


Figure 10.2 [Image description – [See Appendix C Figure 10.2](#)]

There is, again, a mnemonic device and “trick” that can be helpful in identifying and memorizing the key signatures with flats.

Battle

Ends

And

Down

Goes

Charles’

Father

As B \flat , E \flat , A \flat , D \flat , G \flat , C \flat , then F \flat appear in that order, the mnemonic device above can be used to help remember the order in which they appear. It can also be used to identify or create a key signature. The flats in a major key signature are always (almost) one flat past the name of the key, using the mnemonic device. For example, when trying to remember the key signature for A \flat major, we would say the “trick” one past the A. Battle Ends And Down – D is one past the A in the device, so the key signature would be four flats. The exception is F major, as there is only one flat. Similarly, when trying to identify a key signature, we can look at the second last flat added, and that will be the key – with the exception again of F major as it only has one flat.



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<https://openbooks.macewan.ca/introtomusictheory/?p=48#h5p-27>

II. Minor Scales

The major scale is the most common and useful scale when studying music theory, but it is important to also familiarize ourselves with other scales—starting with the two most common minor scales: the natural minor scale and the harmonic minor scale.

The natural minor is a useful starting point when studying minor scales. We can create a natural minor scale by lowering the third, sixth, and seventh degrees of a major scale by one semitone. The harmonic minor scale can be created by lowering the third and the sixth degrees of a major scale by one semitone.

Click on each of the following slides to find out more. Click on the information icon “i” to read the additional note.

To view the slides in full-screen mode, click the icon  at the bottom-right corner.

Click the Play icon to listen to the sample clip.



An interactive H5P element has been excluded from this version of the text. You can view it online here:
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Exercises

Add the necessary accidentals to create the following scales:



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<https://openbooks.macewan.ca/introtomusictheory/?p=50#h5p-28>



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<https://openbooks.macewan.ca/introtomusictheory/?p=50#h5p-29>

The natural minor scale can also be considered as a “displaced” major scale. If we look at C major scale, we can see it has no accidentals.



Figure 11.1

If we take the exact same notes but start on A instead of C, we get A natural minor.



Figure 11.2

This is because C major and A natural minor are related scales, meaning they have the same notes; they just start at different points. To discover any major scale's relative minor, simply count up to the sixth note of the major scale. To discover any natural minor's relative major, count down six notes.

Scales



One or more interactive elements has been excluded from this version of the text. You can view them online here:
<https://openbooks.macewan.ca/introtomusictheory/?p=50#oembed-1>

Video 11.1 Scales [Video transcript – [See Appendix B 11.1](#)]

12. Minor Key Signatures

Similar to major key signatures, minor key signatures tell us which notes need to be sharp or flat when music is written in a minor key. Minor key signatures ALWAYS follow the sharps or flats needed to create the natural minor scale, never the harmonic minor.

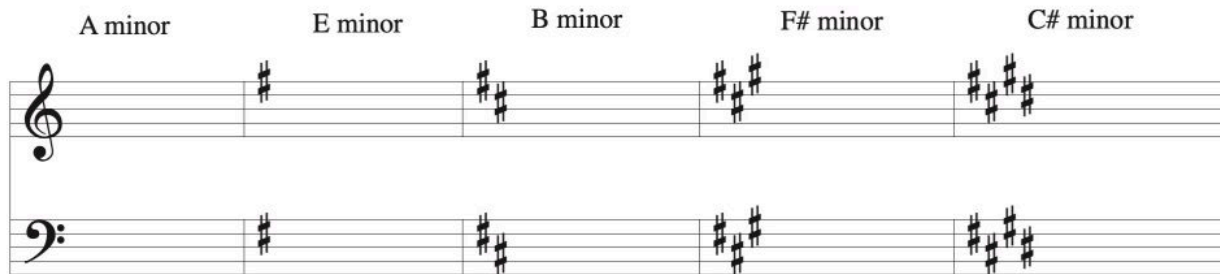


Figure 12.1 [Image description - [See Appendix C Figure 12.1](#)]



Figure 12.2 [Image description - [See Appendix C Figure 12.2](#)]

You may notice that these key signatures are familiar; for example, E minor is identical to G major. This is because all minor key signatures have what is called a relative major, and every major key signature has a relative minor. You can find the relative MINOR key signature by finding the sixth note of a MAJOR scale. You can also find the relative MAJOR key signature by counting up to the third note of any MINOR scale.

13. Quiz 2



An interactive H5P element has been excluded from this version of the text. You can view it online here:







<https://openbooks.macewan.ca/introtomusictheory/?p=655#h5p-33>

PART III
RHYTHM

14. Rhythm Basics

Sound in music not only has a pitch (note) but also has duration, meaning how long the pitch is heard or played. The combination of durations found in music is called rhythm. This duration or rhythm can be determined by the colour, stem, and beam or flags on a note. There are numerous types of note durations; we will examine some of the most common note durations.

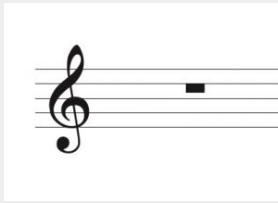
Note Durations

Whole note		A whole note, the largest type of note, can be identified by the lack of stem or colouring in the centre of the note itself.
Half note		Half notes differ in appearance from whole notes in that they have a stem but are still empty in the centre of the note itself.
Quarter note		Quarter notes have a stem but are fully coloured in.
Eighth note		Eighth notes (8th) are the longest notes with a flag. They still have a stem and are coloured in quarter notes, but they have a flag when they aren't paired with another eighth (or smaller) note.
Beamed Eighth note		When paired together, eighth notes are beamed rather than flagged. The black line connecting the two notes together is the beam.
Sixteenth note		Sixteenth notes are the shortest note we will study, with two flags. They can also be connected like eighth notes but with two beams.

Rests

Similar to notes, music uses symbols called rests to indicate lengths of silence.

Whole rest



A whole rest is the same length as a whole note but of silence. It appears as a black rectangle that hangs from the 4th line of the staff.

Half rest



The half rest is the same length as a half note but of silence. It is a black rectangle that sits on the 3rd line of the staff.

Quarter rest



The quarter rest replaces a quarter note length with silence. It's a squiggly line, sometimes appearing as a backward 3 with a line on top.

Eighth rest



The eighth rest is the same duration as an 8th note. It resembles a 7 with heavy dot on the left-hand side of it.

Sixteenth rest



The sixteenth rest resembles the eighth rest, but it is similar to the eighth and sixteenth notes, has an extra scoop on it – similar to the extra beam or flag on the notes.

15. Time Signature Part 1

Notes of different durations are combined together to form a rhythm. Rhythms are grouped together in music based on the time signature. Time signatures are two numbers placed on top of each other at the beginning of the staff that tell us how many beats there will be per bar, and what type of note gets on beat. Bars, also known as measures, are indicated with a vertical line on the staff. Each bar must contain the same total duration of notes and rests as indicated by the time signature's top number.

Examples

Click the blue Information icons to read more explanation. Click the full mode icon at the bottom-right corner to view in full screen mode.



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Exercise

Complete this exercise.



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Rhythms and Baselines



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<https://openbooks.macewan.ca/introtomusictheory/?p=883#oembed-1>

Video 15.1 Rhythms and Baselines [Video transcript – [See Appendix B 15.1](#)]

16. Time Signature Part 2

In addition to 4/4 time, there are many other common time signatures. Here are some examples.



Figure 16.1 3/4 is commonly found in many styles of music and is a defining characteristic of waltzes. The 3 quarter notes in the first bar clearly show the 3 beats. [Image description - [See Appendix C Figure 16.1](#)]



Figure 16.2 6/8 time signature is commonly found in jigs and other styles of music. The 6 eighth notes in the first measure show the 6 beats. [Image description - [See Appendix C Figure 16.2](#)]



Figure 16.3 2/2, also referred to as cut time, can be shown using numbers (as it is shown in the first bar), or as a C with a vertical line (as shown in the 3rd bar). [Image description - [See Appendix C Figure 16.3](#)]



Figure 16.4 4/4 is also referred to as common time, which can be shown with a C (as demonstrated in the 3rd bar). [Image description - [See Appendix C Figure 16.4](#)]

17. Quiz 3



An interactive H5P element has been excluded from this version of the text. You can view it online here:

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PART IV
INTERVALS

18. Introduction to Intervals - Size

When examining two notes and their relationship to one another, we refer to this as an interval. When identifying intervals, we commonly need to identify two things: the distance (size) and the quality of the interval.

To identify the distance or size of an interval, simply count letter names in the musical alphabet from the lowest note in the interval to the top note. ALWAYS start by identifying which note is lower, as that is the root—the note used to identify both the distance and the quality.

Looking at the interval below, the lowest note is an E, and the top note is a B. Counting on the musical alphabet, count from E (1) to F(2) to G(3) to A(4) to B(5) – meaning that this interval is a fifth.

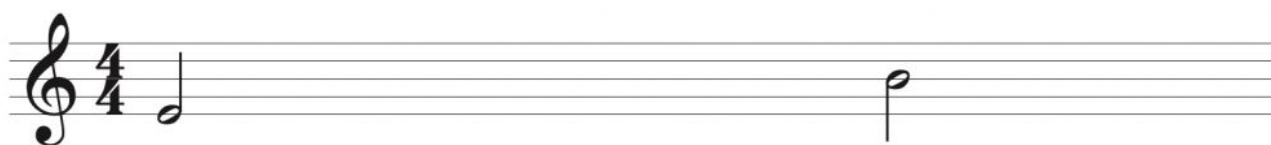


Figure 18.1

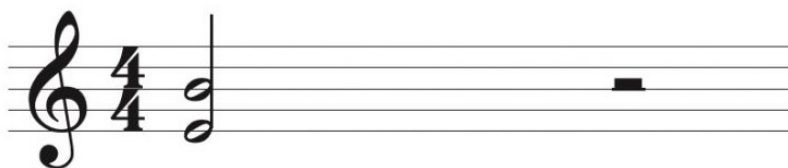


Figure 18.2

When the notes are separate like above, this is a melodic interval. When they are placed on top of each other like below, they are played simultaneously and are referred to as a harmonic interval. This doesn't change how we name the interval in any way.

Exercise

Count the distance on the following examples from the bottom note to the top note to determine the size of the interval.

You can click the icon on the top-right corner of each note image to enlarge it. After you have entered your answer, click any space on the page to automatically check your answer.



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<https://openbooks.macewan.ca/introtomusictheory/?p=856#h5p-44>

19. Interval Quality

Once the size of the interval has been determined, the quality can be found. The easiest way to determine the quality is to start by examining the intervals found in the major scale.



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<https://openbooks.macewan.ca/introtomusictheory/?p=710#h5p-35>

In the image above, there is now a distance and a quality. The distance is found using the methods found in the last section, and the two qualities found here are major and perfect. The major quality is applied to the intervals of a second, third, sixth, and seventh, whereas the perfect quality is found on the fourth, sixth, and eighth.

Major and perfect intervals are found when both the bottom and top notes follow the key signature of the bottom note.

Example

When identifying this interval, we count from D to F (3). We then look at the key signature for D Major, which is F \sharp and C \natural . Because the F \natural belongs in the key of D Major, this interval is a major third.

Click the Plus icon by the notes to read notes.



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<https://openbooks.macewan.ca/introtomusictheory/?p=710#h5p-45>

Exercises



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<https://openbooks.macewan.ca/introtomusictheory/?p=710#h5p-46>

In addition to the major and perfect qualities, there are three other qualities to discuss, and all of them can be created by altering one of the major or perfect intervals found in the major scale.

When a major interval has its top note lowered by one semitone, the quality changes from major to minor. This is possible on Ma2, Ma3, Ma6, and Ma7.



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<https://openbooks.macewan.ca/introtomusictheory/?p=710#h5p-37>

When the top note of a perfect interval is lowered by one semitone, the interval quality becomes diminished.



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<https://openbooks.macewan.ca/introtomusictheory/?p=710#h5p-38>

When either a major or perfect interval is made larger by raising the top note by one semitone, the interval becomes augmented.



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Exercise

Add the accidentals to create the correct interval.



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<https://openbooks.macewan.ca/introtomusictheory/?p=710#h5p-41>

When naming intervals, the bottom note (the root), quality, and distance are all given in that order. For example, in the image, the root of the interval is A \flat , the quality is major, and the distance is a third. The name of this interval is A \flat ma3.



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Intervals



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Video 19.1 Intervals [Video transcript – [See Appendix B 19.1](#)]

20. Quiz 4



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PART V
TRIADS

2I. Introduction to Triads

When two or more notes are played simultaneously, it creates harmony. One of the most common applications of harmony is using chords. While there are many different types of chords, triads are the most commonly used chords in contemporary music.

A triad is a three-note chord built on a scale's first-, third-, and fifth-scale degrees. Similar to intervals, there are various qualities of triads.

The Major triad is built on the first, third, and fifth notes of a major scale. The image below shows the first five notes of F major scale. The numbers indicate the first (F), third (A), and fifth (C) scale degrees. We can take those three notes to create a F major triad.

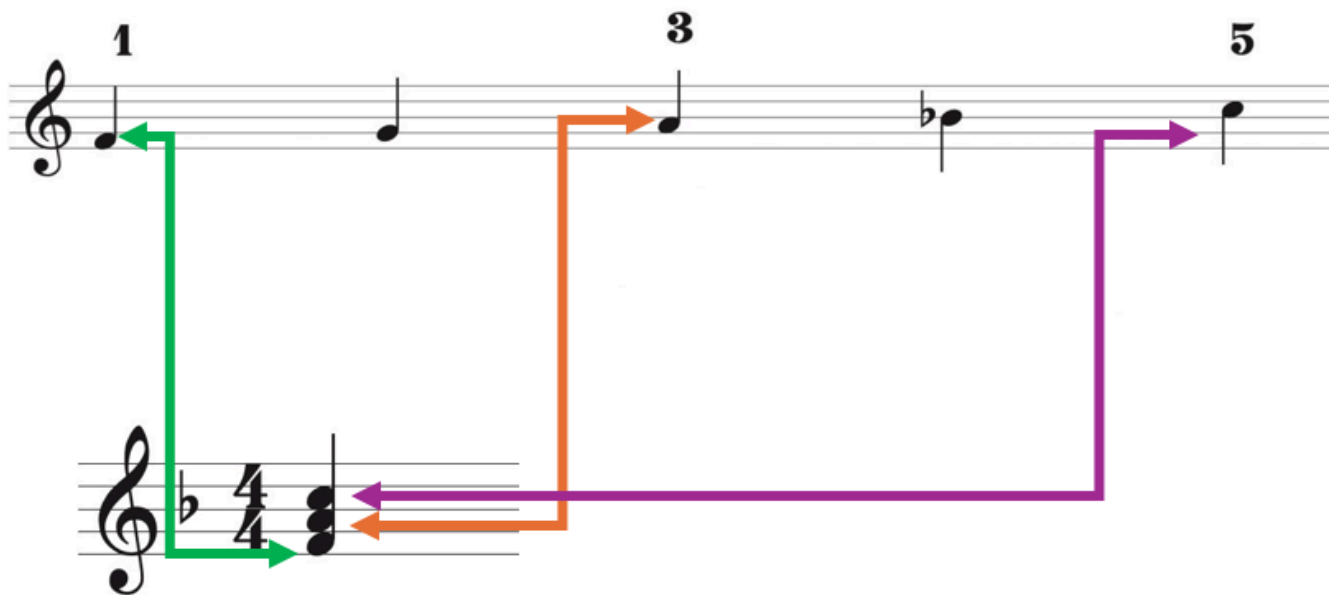


Figure 21.1 Use an F major scale to create an F triad.

22. Triad Qualities

Similar to intervals, triads have various qualities. There are four main qualities, starting with major. All of the other qualities can be analyzed and created by starting with a major triad.

Minor Triad

As the major triad is based on the first (root), third, and fifth of the major scale, we can create the other qualities of triads by slightly altering the third or fifth of the triad. We cannot alter the root of the triad as that changes the note on which the triad is based.

When lowering the third by one semitone, a major triad can become a minor triad.



Figure 22.1 F major and F minor. [Image description - [See Appendix C Figure 22.1](#)]

It is also possible to create a minor triad by taking the first, third, and fifth notes of any of the minor scales.



Figure 22.2 [Image description - [See Appendix C Figure 22.2](#)]

Diminished Triad

The next triad quality to be examined is diminished. This can be created by lowering both the third and fifth of a major triad by one semitone.

Example



An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://openbooks.macewan.ca/introtomusictheory/?p=69#h5p-61>

Augmented Triad

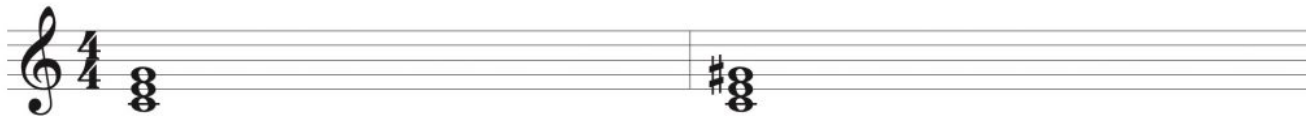


Figure 22.3 [Image description - [See Appendix C Figure 22.3](#)]

The last quality is augmented. The augmented triad is created when the fifth of a major triad is raised by one semitone.

In the image above, the G on the C triad has been raised using a sharp symbol by one semitone, creating a C aug triad in the second bar.

Creating and Analyzing a Triad

When creating or analyzing a triad, the simplest method is to start with identifying the major key of the root of the triad.

For example:



Figure 22.4 E diminished triad. [Image description - [See Appendix C Figure 22.4](#)]

In the image above, the root of the triad is E. E major scale and key signature has four sharps, F \sharp , C \sharp , G \sharp , and D \sharp . As the G does not have the sharp found in the key signature, it has been lowered by one semitone. The B \flat also has also been lowered by one semitone from the E major key signature. Because both the third and fifth have been lowered by one semitone each, the triad is E diminished.

In the image below, B \flat is the root of the chord. The key signature for B \flat major has two flats, B \flat and E \flat . The fifth of the triad, F, has been raised one semitone to F \sharp , making this a B \flat augmented triad.

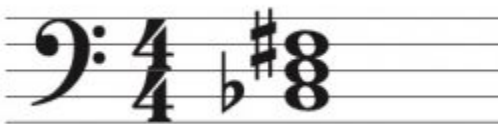


Figure 22.5 B \flat augmented triad. [Image description - [See Appendix C Figure 22.5](#)]

Exercises



An interactive H5P element has been excluded from this version of the text. You can view it online here:
<https://openbooks.macewan.ca/introtomusictheory/?p=69#h5p-62>

23. Inversions

When triads are stacked root, then third, then fifth, the triad is identified as being in root position. In this position, the root is found on the bottom of the triad.

Triads found in music, however, are not always stacked in this order.

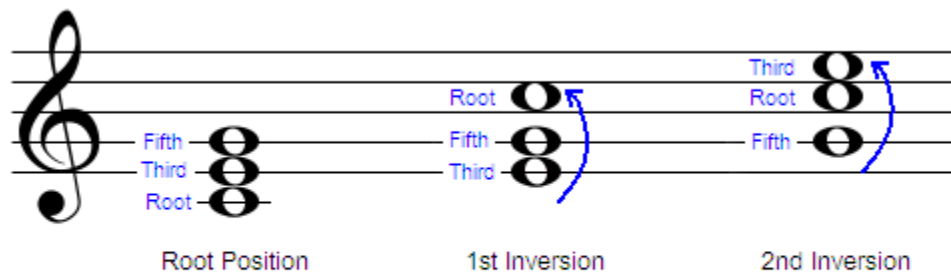


Figure 23.1 C major triad.

In the following slides, we will see a D major triad in root, first, and second inversion. and a few others, and the visual tricks to identify the inversions.



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Exercises



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Triads



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Video 23.1 Triads [Video transcript – [See Appendix B 23.1](#)]

24. Quiz 5

Part 1



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Part 2



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Appendix A: Media Credits

Images

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Figure 8.4 [F Major Scale](#) by © Berklee College of Music.

Figure 9.1 [G Major Scale](#) by © Berklee College of Music.

Figure 23.1 [Triad inversions graphic](#) by Smjames135. Licensed under [CC BY-SA 3.0](#).

Video/Audio

“[Basics of Printed Music](#)“, “[Intervals](#)“, “[Rhythms and Baselines](#)“, “[Scales](#)“, and “[Triads](#)” videos by Devin Hart (Director) and Brooklyn Leschyshyn (Videographer) under [CC BY-NC 4.0](#).

“[C major scale](#)“, “[F lydian scale](#)“, “[F major scale](#)“, “[G scale no F](#)“, and “[G major correct](#)” audio by Devin Hart under [CC BY-NC 4.0](#).

Appendix B: Video Transcripts

0.1 Basics of Printed Music

Hi. My name is Morgan Hanna. I'm a 2023 graduate of MacEwan Music Program, and I'm a guitar player. Today I'm here to talk about things you might see on printed music and these are things that me myself, I see all the time as a professional working in the music industry now.

So I think it's really important for you to know these things as well. One of the first things you would see would be things like a staff, bars, and bar lines.

The next thing you would see would be clefs, key signatures, and time signatures. All three of those things that I just listed are usually towards the front of the piece of music.

Then you'll also see things like notes and rests dispersed throughout, you'll see chord symbols, and you might see lyrics on a line below the staff.

[\[Return to Basics of Printed Music video\]](#)

1.1 Scales

Hi. My name is Devin Hart, and I'm an instructor here at MacEwan University. Today, I'm going to talk to you about scales.

We're going to start with the major scale. This is what C major sounds like. There's lots of different ways to think about the major scale, but one way is to look at the distance between one note to the very next note and the pattern of tones and semitones that that creates.

In all major scales, we have a pattern of a tone, another tone, a semitone, a tone, a tone, a tone, and then a semitone to end. This remains true of all major scales regardless of which note we start on. While there are many types of minor scales, we're going to focus on two of them today.

The first one is the natural minor scale, and the second one is the harmonic minor scale. We're going to compare C natural minor to C major. The differences are on the third, sixth and seventh note. In C minor, we're going to lower the third, sixth and seventh notes by one semitone each to create C natural minor, which sounds like this.

C harmonic minor only has a lowered third and lowered sixth when compared to C major, and it sounds like this. Another way to think of the natural minor scale is as a major scale, but starting on a different note. A natural minor and C major have the exact same notes.

C major starts on C and is all white notes on the piano. A minor starts on A, and is again, all white notes on the piano. This is called related major and minor scales. To go from the major to the minor, you can count up six letter names, C D E F G A, and that's you'll start on for the related minor.

If I make a major scale, but instead of starting on starting on D, I'm going to have to incorporate some of the black notes

on the piano. If I go from D to E, I have a tone, from E to F is a semitone, so I'll raise that note to an F sharp to get the tone. From F sharp to G is a semitone. I'm good there.

G to A is a tone. A to B is a tone. B to C is only a semitone, but I need a tone, so I'll raise it to C sharp, and then I have a semitone here to end. What this means is that D major scale has two sharps, F sharp and C sharp. These are the two sharps that we would also include in the key signature for D major scale.

[\[Return to Scales video\]](#)

15.1 Rhythms and Baselines

Hello. My name is Rubim De Toledo, and I am the head of the base program here at MacEwan University. Today I'm going to be playing some rhythms or some baselines so that you can see what they look like on the staff, as well as what they sound like.

First examples in the Key of C, it's in base clef in 4/4 time, and it's predominantly quarter notes, and it sounds like. I'll play it again, and I'll count the beats. One, two, three, four, one, two, three, four, one, two, three, four.

The next rhythm is similar to the first one, except now I'm using a lot of eighth notes. When we count eighth notes, we can go one and, two and, three and, four and. So I'll try that. I'll count it and play it at the same time. One and, two and, three and, four and, one and, two and, three and, four and, one, two, three, four.

The next rhythm introduces some rests. In this case, quarter note rests. Now, I'll count it up. One, two, three, four, one, two, three, four, one, two, three, four. Now, I'll introduce some eighth note rhythms to this. And I'll count this time. One and, two and, three and, four and, one and, two and, three and, four and one.

Now, I'll introduce some 16th note rhythms. And finally, I'll play a baseline that has some 16th note rests in it.

[\[Return to Rhythms and Baselines video\]](#)

19.1 Intervals

Hi. My name is John McMillan. I'm the head of songwriting at MacEwan University, and I'm going to talk about intervals.

There's two kinds of intervals. There's melodic, and there's harmonic. And what they really are is the building blocks, the ingredients of melody and harmony.

And so we're going to start with major intervals. Major intervals are Major second. Major third. And then we got Major six. And Major seven. And you'll notice, I missed the fourth and the fifth. And that's because those are called perfect intervals. And so a perfect fourth and a perfect fifth. And we also have a perfect octave, which is just the bottom note to the same note up high.

Then from there, we have minor intervals, and that's when you take a major interval and you lower the top note. So we go a minor second. A minor third. A minor six and a minor seven. And then with perfect intervals, if we lower them, we actually get diminished intervals.

And a diminished fourth is actually the same as a major third. So here's a fourth. And here's a diminished fourth, which

is actually a major third. And that's because those two notes are only a semi tone apart. But if we go a diminished fifth, and that one is also called a tritone. I'll show you some intervals on the piano.

This is a major third. This is a minor third. This is a major second and I'll lower the top note to make a minor second. This is a major six. Again, I'll lower the top note to make a minor six. This is a major seven And I'll lower that top note to make a minor seven. Then we have a perfect fourth. We have a perfect fifth. And I'll lower that one, the top note to make a diminished fifth. That one's also called a tritone. And that's it. Those are intervals.

[\[Return to Intervals video\]](#)

23.1 Triads

Hello. My name is Katie Perman. I'm the head of the Vocal department here at MacEwan University. And today, we're going to talk about triads.

A triad is a cord made up of three notes, the root, the third, and the fifth. There are four main types of triads we're going to discuss today. The major triad, the minor triad, the diminished triad, and the augmented triad.

This is a major triad. If we lower the third, we get a minor triad. If we now additionally lower the fifth, we get a diminished triad. If we go back to our major triad and raise the fifth, we now have an augmented triad.

Another way to think of the root third and fifth of a triad is based on intervals. So a major triad again, is one, three, five. And that is us stacking a major third and then a minor third on top. That's how we create that major triad sound.

If we take a minor triad, where we now have lowered the three, so one lowered three or flat 35. This is now a minor third with a major third stacked on top to create that sound.

If we have a diminished triad, we're now lowering that fifth, so we're stacking minor thirds on top of each other. A minor third a minor third makes our diminished.

And our augmented triad is a major third stacked with another major third because we've now raised the fifth. So it's one, three, sharp five, which is a major third and a major third to create our augmented triad sound.

If we take our triad and move the bottom note up to the top, we get what is called an inversion. This is in root position. There is a major chord in root position. If we're to take the bottom note and put it on the top, we have first inversion. Then if we're to take this bottom note, put it on the top, we are now in second inversion. Then we can go back down to first and back down to root.

[\[Return to Triads video\]](#)

Appendix C: Figure Descriptions

Figure 1.2 image description: A treble clef on a staff. A whole note is placed on the second from bottom line with a letter G beside it. A whole note is also below the staff on a leger line. There is an arrow with the text middle C pointing at the note. [[Return to Figure 1.2](#)]

Figure 1.3 image description: A bass clef symbol on a staff. A whole note on the second from top line with a letter F beside it. A whole note above the staff on a leger line with an arrow and text middle C pointing at it. [[Return to Figure 1.3](#)]

Figure 1.4 image description: Two staves joined by a curved line. The top staff has a treble clef and the bottom staff has a bass clef. There are letters showing the musical alphabet spread across both staves. [[Return to Figure 1.4](#)]

Figure 6.1 image description: A staff with treble clef, and 4/4 time signature. The staff is divided into five sections with barlines. There is a repeat symbol placed at the start and end of the staff. [[Return to Figure 6.1](#)]

Figure 6.2 image description: A staff with treble clef, and 4/4 time signature. The staff is divided into five sections with barlines. There is a repeat symbol to start the staff. There is a repeat symbol at the end of the 4th bar. Over the 4th bar there is a line with the number 1. Over the 5th bar is a line with the number 2. [[Return to Figure 6.2](#)]

Figure 6.3 image description: Four staves with clefs. There is a A in a box to start the first staff. There is also a swirly symbol indicating the Del Signa. There is a B in a box to start the second staff, with the image of a coda bug at the end of the staff. There is a C in a box to start the third staff. The third staff ends with the text D.S al coda. The fourth staff starts with a coda bug and the text Coda. [[Return to Figure 6.3](#)]

Figure 8.1 image description: Image of a staff with a treble clef. Notes are placed on staff from middle C up one octave. Notes are named below the staff, and scale degree numbers are below the note names. Above the staff are brackets with the numbers 1 or 1/2 – showing the whole steps and half steps. [[Return to Figure 8.1](#)]

Figure 8.2 image description: Image showing piano keyboard, staff below showing treble clef and notes from G on the second line to G on top of staff. Sharp symbol is placed before the F. [[Return to Figure 8.2](#)]

Figure 8.4 image description: Image of piano keyboard and staff with treble clef. Notes are placed from bottom space to top line, and there is a flat symbol beside the 4th note – B. [[Return to Figure 8.4](#)]

Figure 9.1 image description: Image of piano keyboard and staff with treble clef. Notes are placed from second line to on top of the staff, with a sharp placed before the 7th note – F. [[Return to Figure 9.1](#)]

Figure 9.2 image description: Image of staff with treble clef, and a sharp placed on the top line of the staff. Notes on staff go from second line to on top of the staff. [[Return to Figure 9.2](#)]

Figure 9.5 image description: Image of staff, treble clef and 4/4 time signature. The same notes are written as previous image, but in this one there is a key signature with 4 sharps placed between the clef and the time signature. [[Return to Figure 9.5](#)]

Figure 10.1 image description: Image of two staves. Top has treble clef, bottom has bass clef. There are 5 bars. The first has the text C major over it. The second has 1 sharp in the key signature and the text G major over it. The third has 2 sharps and the text D major. the fourth has 3 sharps and A major, fifth has 4 sharps and the text E major. [[Return to Figure 10.1](#)]

Figure 10.2 image description: Image of two staves. Top has treble clef and bottom has bass clef. There are 5 bars. The

first has the text C major over it. The second has 1 flat in the key signature and the text F major over it. The third has 2 flats and the text B \flat major. The fourth has 3 flats and the text E \flat major, and the fifth has 4 flats and the text A \flat major. [[Return to Figure 10.2](#)]

Figure 12.1 image description: Image of two staves. Top has treble clef, bottom has bass clef. There are 5 bars. The first has the text A minor over it. The second has 1 sharp in the key signature and the text E minor over it. The third has 2 sharps and the text B minor. The fourth has 3 sharps and F# minor, fifth has 4 sharps and the text C# minor. [[Return to Figure 12.1](#)]

Figure 12.2 image description: Image of two staves. Top has treble clef and bottom has bass clef. There are 5 bars. The first has the text A minor over it. The second has 1 flat in the key signature and the text D minor over it. The third has 2 flats and the text G minor. The fourth has 3 flats and the text C minor, and the fifth has 4 flats and the text F minor. [[Return to Figure 12.2](#)]

Figure 16.1 image description: Staff with four measures. Treble clef, one sharp in key signature, 3/4 time signature is shown. Notes placed on second line in each measure. Red rectangle surrounds the first three notes. [[Return to Figure 16.1](#)]

Figure 16.2 image description: Treble clef, one sharp, 6/6 time signature on staff. Notes placed on second line in all four measures. Red rectangle surrounds first 6 notes. [[Return to Figure 16.2](#)]

Figure 16.3 image description: Treble clef, one sharp, 2/2 time signature on staff. Notes placed on second line in all four measures. Third measure has a C with a vertical line. Red rectangle surrounds 2/2. Red rectangle surrounds C with vertical line. [[Return to Figure 16.3](#)]

Figure 16.4 image description: Treble clef, one flat, 4/4 time signature on staff. Letter C placed in third measure. Notes placed on bottom space in all four measures. Red rectangle surrounds letter C. [[Return to Figure 16.4](#)]

Figure 22.1 image description: Image of staff, treble clef and 4/4 time signature. Half notes are stacked vertically on first, second, and third space (F,A,C). Second stack is on the same spaces, but there is a flat symbol on the second space (A). [[Return to Figure 22.1](#)]

Figure 22.2 image description: Image of staff, treble clef. Seven quarter notes are placed ascending from bottom space to top line. There are flat symbols on the third, fourth, sixth, and seventh notes. The first, third and fifth notes have the corresponding numbers over top. [[Return to Figure 22.2](#)]

Figure 22.3 image description: Image of staff, treble clef and 4/4 time signature. Whole notes are placed on a ledger line below the staff, the first and second line. (C,E,G). There is a vertical barline, then another set of whole notes on the same lines but with a sharp symbol on the top note (G). [[Return to Figure 22.3](#)]

Figure 22.4 image description: Image of staff, treble clef and 4/4 time signature. Whole notes are placed on the bottom three lines. There is a flat before the note on the third line. [[Return to Figure 22.4](#)]

Figure 22.5 image description: Image of staff, bass clef and 4/4 time signature. Whole notes are placed on the second, third, and fourth lines. There is a flat on the second line, and a sharp on the fourth line. [[Return to Figure 22.5](#)]

Versioning History

This page provides a record of edits and changes made to this book since its initial publication in the MacEwan Open Books collection. Whenever the authors make edits or updates to the text, they provide a record and description of those changes here.

If the change is minor, the version number increases by 0.1. If the edits involve substantial updates, the version number goes up to the next full number. The work presented on our website always reflects the most recent version.

Version	Date	Change Details