KATHERINE CHARLTON

5TH EDITION

# EXPERIENCE MUSIC

Mc Graw Hill Education

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*Fifth Edition*

# EXPERIENCE MUSIC

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Mc Graw Hill Education

EXPERIENCE MUSIC, FIFTH EDITION



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To my husband, Jeff Calkins, who likes music with tunes he can hum.

# Brief Contents

# Contents

# Experience Music

With *McGraw-Hill Connect® Music,* students can experience music personally. *Connect Music* is the most successful digital platform in music: a truly integrated teaching and learning program that provides both one-click access to the program's music selections and interactive exercises that focus on the listening process.

Katherine Charlton has drawn on her extensive experience in the classroom to create a listening experience that motivates and engages students. *Connect Music* ensures that students can come to class confident and prepared, as they develop the active listening skills they need for success in the course and a lifetime of more meaningful musical experiences.

## Experience Personalized Playlists

Recognizing musical elements in a piece you have never heard before is a learned skill. *Experience Music* helps students develop that skill by providing an avenue into the musical elements through music they are already familiar with. McGraw-Hill Education has partnered with Spotify®, the service that allows you to stream music for free and build playlists containing your favorite songs.

In this new edition, look for the Spotify playlists integrated into the McGraw-Hill Connect ebook, or Spotify marginal icons in the print edition. These will lead you to playlists that correspond to concepts covered in *Experience Music*. Using Spotify, you can access examples of specific musical elements in pieces that are already familiar to you.

**How Spotify works:**

1. If you do not already have a Spotify account, sign up for one for free at Spotify.com/signup.
2. Click on the Spotify playlists in the Connect ebook. You can also use the URLs provided wherever you see the Spotify icon in the print edition.

**Musical Quotes**

Popular artists often "quote" memorable melodies written by others. Listen to examples in Spotify.

spoti.fi/musicalquotes

3. Log into your Spotify account if prompted.
4. Enjoy the playlist!

## Experience Personalized Learning

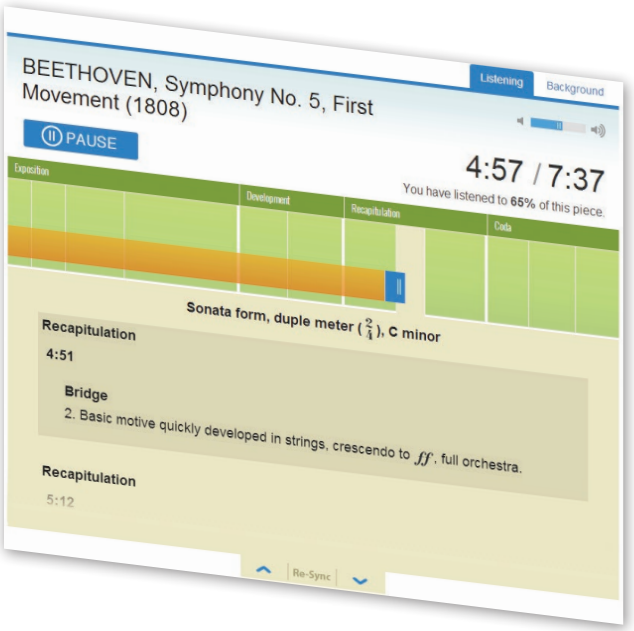
LEARNSMART®

How many students *think* they are prepared but struggle on the first exam? *LearnSmart,* McGraw-Hill Education's personalized learning system, identifies what students know—and more important, what they don't know. Using Bloom's Taxonomy and a highly sophisticated "smart" algorithm, LearnSmart creates a personalized study plan, unique to each student's needs, where he or she can demonstrate active listening skills. Instructors using LearnSmart are reporting an increase in student performance by one letter grade or more.

# Personally

In *Connect* all audio selections discussed in the text's "Featured Listening" sections and Listening Guides are available via a simple streaming player and through interactive **Listening Guides.**

The interactive Listening Guides provide a guided listening experience that trains the student listener's ear by pointing out meaningful elements, themes, and instrumentation in each work. Now optimized for tablets, students can apply their listening skills whenever and wherever they go. Through the Listening Guides, instructors can monitor whether individual students have completed these listening activities.




## Experience Personalized Grading, Made Easier

The first and only analytics tool of its kind, Connect Insight™ is a series of visual data displays that provides at-a-glance information regarding how your class is doing.

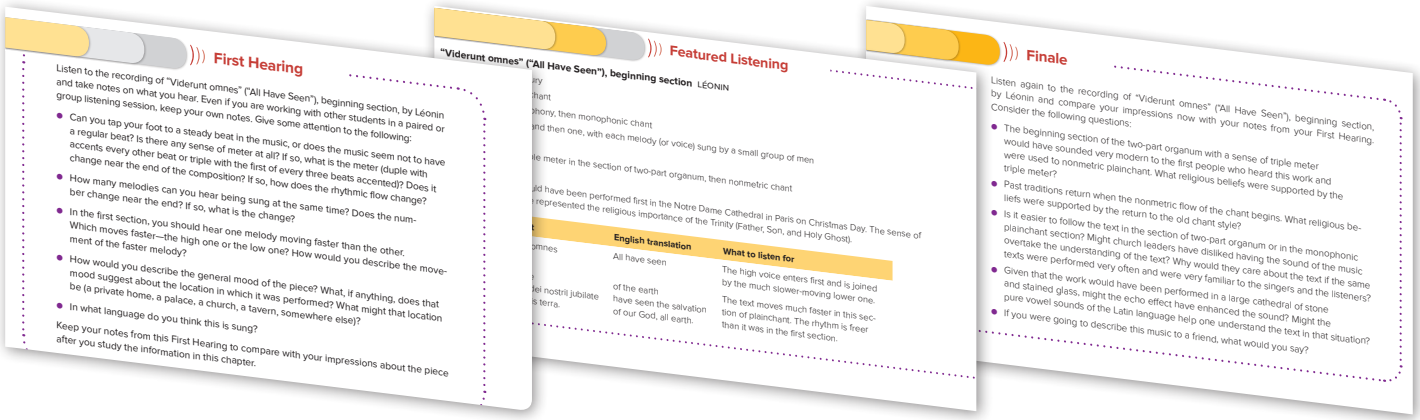
Designed for mobile devices, Connect Insight travels from office to classroom, available on demand wherever or whenever it's needed.

connect INSIGHT™

A **First Hearing** opens each chapter and guides students through their first encounter with a piece with specific questions intended to encourage close listening and critical thinking.

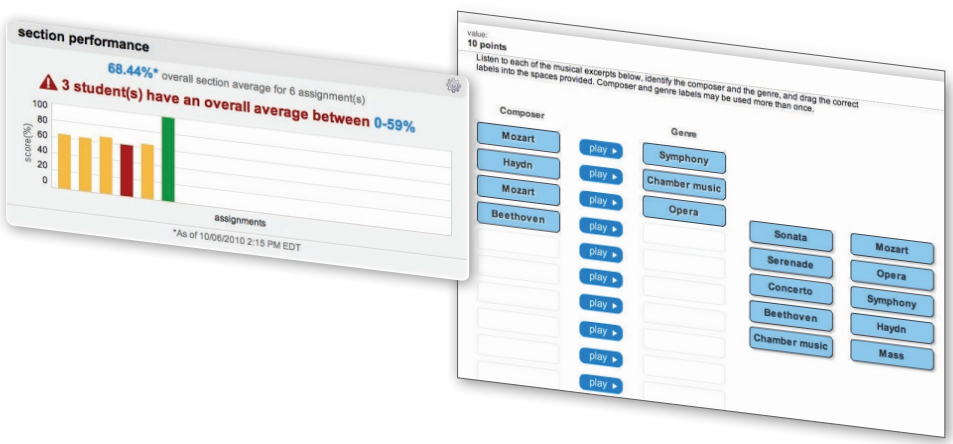
The **Featured Listening** is a step-by-step listening guide that returns students to the work first heard in the First Hearing and trains them to discern the meaningful elements, theme, and instrumentation of the selection.

Each chapter ends with a **Finale.** The students use knowledge acquired in the chapter to respond to more advanced questions about the piece encountered in the First Hearing and Featured Listening. Having studied the piece in the chapter, the students will see how much more they are now able to hear in the same piece of music.




Instructors can assess the development of students' listening skills—online and at any time—so that they don't have to wait for a midterm for an update on their progress.

A wide array of online listening experiences, including comparison exercises, First Hearing and Finale activities, and audio click/drags, are available. Learning objectives link to chapter sections and in turn to print and online activities, so that students can immediately assess their mastery of the material.




connect MUSIC

# Experience Music the Way You Want to Teach It


Through McGraw-Hill Create, a newly revised Rock Music chapter is available for instructors who want more focus on this genre—Katherine Charlton's area of expertise. Create-only concert reports are also available by genre for instructors who want to include worksheets that guide students through this popular course exercise.

McGraw-Hill Create allows you to create a customized print book or eBook tailored to your course and syllabus. You can search through thousands of McGraw-Hill Education texts, rearrange chapters, combine material from other content sources, and include your own content or teaching notes. Create even allows you to personalize your book's appearance by selecting the cover and adding your name, school, and course information. To register and to get more information, go to http://create.mheducation.com.

# Chapter Updates

Those of us who teach music appreciation courses often discuss how we might connect the subject matter of our courses with the music that most interests today's students. Students tend to like and be familiar with popular or rock music, and *Experience Music* 5e has added many suggestions for linking popular, rock, or jazz recordings with the material discussed in this book through Spotify. Students will find multiple marginal links to Spotify playlists in the chapters. As added value, Spotify playlists are designed around core features of music—for example, sound, meter, and texture—and instructors and students can access those playlists for a trove of current and relevant examples, thus enhancing the connections between classical and popular music for their students.

### A Few Examples:

In the chapter "Elements of Music: Sound, Rhythm, Melody, and Harmony," on elements of music, beside a discussion of quadruple meter, students will find a reference to a Spotify playlist called "Meter: Quadruple." On the Spotify Web site, they will find this playlist and might hear something by Avril Lavigne as a contemporary example of quadruple meter.

"Comfort Ye" from George Frideric Handel's *Messiah* is in quadruple meter. Listen to it and see if you can hear the meter.

Meters other than duple, triple, and quadruple exist but are less common than those three. **Compound meters** subdivide the basic beats into sets of threes. Two groups of three are counted as six beats, and three groups of three are counted as nine beats. **Irregular meters,** in which beats are accented in groups of five, seven, or other numbers, can be found, particularly in music after the early twentieth century. By the late twentieth century, some music avoids any accenting of beats or meter at all.

**Meter: Quadruple**

Quadruple is the most common meter used in popular music, particularly rock music. Listen to examples in this Spotify playlist.

spoti.fi/quadruple

In the chapter "Elements that Structure Music: Key, Texture, and Form," on structural elements of music, beside a discussion of homophonic sound, students will find a reference to a Spotify playlist called "Texture: Homophony." On the Spotify Web site, they will find this playlist and might hear Paul McCartney's "Hey, Jude," as an example of homophonic texture.

In homophonic ("same sound") music, a *single* melodic line predominates, while the other voices or instruments provide an accompanying harmony. The listener's attention is focused on the melody; the harmonic accompaniment is heard as a kind of musical background. Harmonic accompaniment to the melody can take various forms—from the simple strumming of chords on a guitar to a full orchestra playing music that supports, but does not get in the way of, the melody.

Amy Beach's "Ah, Love, but a Day" in the book's recordings is an example of homophonic texture. Listen to it and notice that the primary single melody is sung with piano accompaniment.

**Texture: Homophony**

Homophony is the most common texture used in popular music because it allows the main singer or solo instrumentalist to stand out over an accompaniment. Listen to examples in Spotify

The goal is to help students understand that the classically oriented topics covered in this book have reach beyond those long-ago centuries; in fact, they relate to much of the music students listen to and love every day.

For *Experience Music* 5e, all Listening Guides have been reviewed for consistency, clarity, and effectiveness. In addition, new Listening Guides have been incorporated in the chapter "Romantic Songs" ("Widmung" by Robert Schumann), the chapter "Primitivism and Neoclassicism" (*Symphony of Psalms,* second movement by Igor Stravinsky), and the chapter "Developments in Jazz in the Late Twentieth Century" ("A Night in Tunisia" by Dizzy Gillespie). A whole new section on postmodernism has been added to the chapter "Minimalism and Postmodernism," with a new Listening Guide to John Corigliano's "All Along the Watchtower," based on the poem by Bob Dylan.

# A Chat with Katherine Charlton

### How did *Experience Music* evolve?

More than anything else, students have shaped this book. I have always encouraged my students to ask questions and talk to me about what they hear in the music I play for them. Happily, I taught an honors section of music appreciation when I was planning and writing this book, and that class had only twenty students, many of whom knew one another because they had taken classes together before. The small size of the class and the students' comfort with one another encouraged them to be more open with questions they asked me, and more eager to take part in class discussions than students I have had in larger classes. Most of the pedagogical features in *Experience Music* came from my work with those honors students. Other decisions I made about the content of the book, including the exclusion of music notation and the placement of world musics before music in the late twentieth century, were also based on the reactions and interests of my students.

### How do you decide what to cover?

One goal was to keep the coverage of essential material as concise and clear as possible. I know that I included more listening activities than any instructor has time to use in a single semester or quarter, but I did that to give instructors flexibility and a rich array of choices. When I found myself teaching more than one section of the class in a single semester, I often changed the activities I used from one class to another, just to give myself variety.

I often talk to colleagues about the music that most interests today's students and how we might connect the subject matter of our courses to those interests. Because our students tend to like and be familiar with popular or rock music, for the 4th edition of the book, I added many suggestions for popular, rock, or jazz recordings that relate to the material discussed in the text. Specifically, I suggested that Spotify be used as the source of these contemporary examples because it is free and easily available. As added value, Spotify allowed me to design playlists around core features of music—for example, sound, meter, and texture—that I can add to while this edition of *Experience Music* is in print. The goal is to help students understand that the classically oriented topics covered in this book have reach beyond those long-ago centuries; in fact, they relate to much of the music students listen to and love every day.

### What's new in this edition?

I have reviewed all the Listening Guides for consistency, clarity, and effectiveness. In the First Hearing sections of chapter introductions, I have revised the questions posed to students to better direct their listening, enhance their understanding, and promote critical thinking. I have also added definitions for key terms that students first encountered in the introductory chapters. I've learned that no matter how much students study those introductory chapters, they will not remember all the terms presented there if they do not already have a musical background. And where I ask students to identify musical elements, I

offer options. For example, here are some of the questions in the First Hearing for the chapter "Cantata":

### First Hearing

Listen to the recording of "Wachet auf" ("Sleepers Awake"), seventh movement, by Johann Sebastian Bach, and take notes on what you hear. Even if you are working with other students in a paired or group listening session, keep your own notes. Give some attention to the following:

- From the general sound of this music, where do you think it would likely be performed (a palace, a public park, a church or cathedral, a restaurant, a tavern)?
- What voices do you hear? Are both men and women singing, or just one or the other?
- What is the texture of this composition: monophonic, meaning one melody; homophonic, meaning a main melody with accompaniment; or polyphonic, meaning more than one independent melody?

As in the past, the chapter on Rock Music for this new edition of *Experience Music* is only accessible online because many instructors have told me they do not have time to cover it. However, I still want it to be available for those who can include it. And I hope that anyone with a strong interest in rock music will look at my other book, *Rock Music Styles: A History,* which I hope to update for an 8th edition soon.

Instructors who have used earlier editions of *Experience Music* will likely notice many changes in the artwork, particularly those from the twentieth and twenty-first centuries. I hope the new artworks I have selected refresh the book and offer ever-stronger examples of the cultural context for the music being discussed.

An important change to this edition is a new major section on postmodernism in the last chapter. This is a difficult subject to cover because postmodern works reflect such a variety of features and characteristics. As a focus for students, I chose the most common characteristic of the style—that of combining the sophistication of classical music with more familiar elements of popular music and culture. Certainly, John Corigliano's orchestral setting of a song by the folk singer/songwriter and poet Bob Dylan does that effectively and inventively.

I have also introduced several new musical examples with accompanying Listening Guides. These new examples include "Widmung" by Robert Schumann in the chapter "Romantic Songs"; *Symphony of Psalms,* second movement, by Igor Stravinsky, in the chapter "Primitivism and Neoclassicism"; "A Night in Tunisia" by Dizzy Gillespie in the chapter "Developments in Jazz in the Late Twentieth Century"; and, as mentioned, "All Along the Watchtower" by John Corigliano with lyrics by Bob Dylan in the new Postmodernism section of the chapter "Minimalism and Postmodernism." I hope instructors enjoy these new examples.

### Any final comments?

I hope very much that students who use this book will come away from their music appreciation classes with both listening skills and an appreciation of music that will last their entire lives.

— Katherine Charlton

# About the Author

**Katherine Charlton** taught courses in music appreciation, music history for music majors, and history of rock music for more than thirty years at Mt. San Antonio College in Walnut, California. Before teaching an all music history schedule, she developed the college's guitar program, taught all levels of guitar classes, and conducted guitar and other chamber music ensemble classes. In 1990, she was one of the first instructors at the college to be chosen to teach music history, appreciation, and history of rock music for the American Institute for Foreign Study at the University of London. There, her students came from a variety of community colleges in Southern California and were studying in London, England, for one semester. Taking advantage of the rich cultural environment, Charlton took her students on tours of the city and its collections of early musical instruments and to concerts, operas, and musicals.

With her first husband, Andrew Charlton, who was well known in the field of early music, she performed on medieval gittern, Renaissance lute, baroque guitar, and modern classical guitar. The couple toured and performed in Southern France and Tuscany with the early-music group Li Troubador, led by Gloria Ramsey. In addition to performing early music, Charlton has played percussion in the California University at Fullerton Wind Ensemble and toured Japan as a performer with that group.

Charlton's first book was *Rock Music Styles: A History*, currently in its seventh edition, published by McGraw-Hill Education. In addition to updating that and *Experience Music* for new editions, she has done studies in other music-related subjects, particularly ones related to women as musicians, composers, and teachers of music. One such study was prepared during a sabbatical leave in 2007–2008 to help her colleagues include more women in their courses. Since retiring from teaching, she enjoys planning new changes and additions for her two books and she has also taken up drawing and oil painting. Having been an art history minor in college, and traveled to see many of the world's greatest art museums and collections, she is finally enjoying her own chance to produce artwork. Her paintings have already won several prizes in local art shows and she painted the tribute to Chuck Berry that is on the cover of her rock music book.

# Acknowledgments

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Colleagues who helped me with their suggestions and proofreading include Gary Toops and Kevin Wiley. Gary is an organist who has recently retired from teaching music appreciation at my college and was very helpful in suggesting additions that enriched the book. He also provided wonderful insights when I wrote the MusiCurious box about playing the organ. Kevin is an accompanist and librarian in my department. Other colleagues who advised and encouraged me in various ways include Scott Zeidel, Dr. Margaret Meier, Dr. Robert Bowen, Jason Chevalier, Kevin Mayse, Dr. David Cahueque, and Greg Stier. One of my former teachers, Dr. Robert Stewart, was also very encouraging. I learned more about contemporary music from him than from any other source, and I constantly find myself quoting him when I teach the subject. Dr. Larry Timm, author of *The Soul of Cinema: An Appreciation of Film Music,* is an old friend of mine and was very helpful in making suggestions to improve the chapter on music in film.

I'm grateful to McGraw-Hill Education sales representative Lorraine Zielinski, who suggested to the company that I would be right for this project. I would like to thank Tom Laskey of the Custom Marketing Group at Sony BMG Music Entertainment for his work in researching the recordings used. I appreciate the work of the many McGraw-Hill Education editorial, media, marketing, and production staff members and freelancers who were involved in this book. In addition to those who are listed on the copyright page, I would like to specifically acknowledge the work of Sarah Remington, Susan Messer, Beth Tripmacher, Sandy Wille, Robin Sands, Susan Gall, Ann Marie Jannette, and Deborah Nicholls.

As I indicated earlier, the most important people who guided my choices and attitudes about this book were the many students I have had over the years. I hope that the students who use this book enjoy it, learn from it, and feel encouraged to ask questions in class. After all, we teachers and writers work for them.

—Katherine Charlton Calkins

EXPERIENCE MUSIC

# Prelude

## The Fundamentals of Music

By the time you have finished reading this text, you will have listened to a wide range of works, including symphonies, chamber music, opera, and jazz. Despite their apparent differences, these works are all made from the same component parts: sound, rhythm, melody, and harmony. Before you can begin a serious study of music, you need to understand its most basic elements, and you need to understand how those elements combine to form individual pieces. In addition, for a full appreciation of music, it is helpful to be familiar with the orchestra and various musical instruments. The following chapters will give you the fundamental vocabulary necessary to study music of all kinds.

The exuberant Venezuelan conductor Gustavo Dudamel. ©Hiroyuki Ito/Hulton Archive/Getty Images

Chapter

# 1 Elements of Music: Sound, Rhythm, Melody, and Harmony

The man that hath no music in himself, nor is not moved with concord of sweet sounds, is fit for treasons, stratagems and spoils . . . let no such man be trusted.

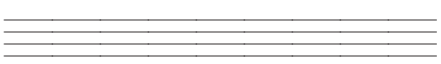
—WILLIAM SHAKESPEARE (1564–1616)

Music is built from elements that we describe using a particular vocabulary. After you have studied the vocabulary, you will be in a much better position to discuss a piece of music with a friend, write a report that describes music you have listened to, and understand what someone else has written about music. For example, a review that criticizes a conductor for not using enough dynamic contrasts or states that an opera singer had problems maintaining good tone quality in certain pitch ranges will make more sense when you know what dynamics, tone quality, and pitch ranges are. Without knowing those terms, you might still understand that the reviewer did not like everything about the performance, but the musical vocabulary communicates more than that simple fact.

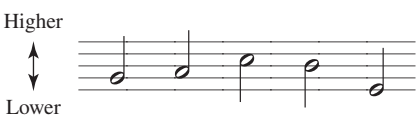
## Sound

Music is an art based on the organization of sounds in time. A sound, any sound, is the result of vibrations in the air set in motion by the activation of a sounding body—the slamming of a door, the ringing of a bell, or the playing of a musical instrument. In the case of a *musical* sound, the vibrations are so definite and steady that they produce what is called a *tone* (also referred to as a **note**), the highness or lowness of which is called the **pitch.**

The precise pitch is determined by the *frequency,* as measured in cycles per second, of its vibration—the *faster* the frequency, the *higher* the pitch, and conversely, the *slower* the frequency, the *lower* the pitch. When music is written down, the higher pitches are represented by notes that are higher (toward the top of the page) on the **staff:** the set of five horizontal lines on or between which the notes are placed. The staff helps us measure how much higher or lower one note is in comparison with another. Each line and each space represents a different pitch:



The higher the position of the note on the staff, the higher the pitch of the tone:



The following is an example of the contour (or high-and-low shape) of pitches (without the staff) for the beginning of "The Star-Spangled Banner."

by
the
see, dawn's
"O you light."
ly
oh, can ear-
say

The distance between two pitches is called an **interval.** The smallest interval that occurs when two identical pitches are played one after the other is called a **unison.** Another interval, called an **octave,** is that between notes of the same name—for example, one C and the next C above it (Figure 1.1). They will sound similar to each other because the higher pitch is produced by exactly double the number of vibrations that it takes to produce the lower pitch. For example, the words *say* and *see* in "The Star-Spangled Banner" are separated by an octave. Between the two notes that mark an octave, there are eleven other notes and many intervals possible among them.

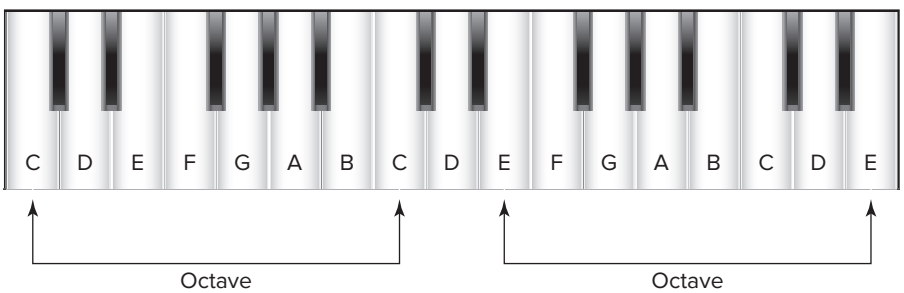



**Figure 1.1** Piano keyboard with one octave from C to C and another octave from E to E marked.

As you look at the piano keyboard, you will notice that the black keys are grouped in patterns of twos and threes. Each note looks different from any other, depending on where it fits within those groupings. Any note on the white key just to the left of a set of two black keys, for example, will be the note C. If you play one C and then the next higher or lower C, you have played an octave. If you play the notes on the white keys from one C to the next, you are playing a C **major scale,** sometimes referred to as the *do-re-mi* scale because those syllables are used to identify the notes as follows: C = *do,* D = *re,* E = *mi,* F = *fa,* G = *sol,* A = *la,* B = *ti.* If you were to continue on and play the notes up to the next higher C, you would be playing what is called a *two-octave scale.* The two-octave scale has a greater **pitch range** than the single-octave scale. The distance between the lowest and the highest notes an instrument or a voice can produce is referred to as the instrument's or voice's *pitch range.*

Another important aspect of musical sound is **dynamics,** or levels of loudness and softness. Sometimes musicians use a variety of dynamic levels when playing a single piece of music. If the musician wants to emphasize one note over the others, he or she can **accent** it by playing it louder. ***Piano (p),*** which means soft, and ***forte (f),*** which means loud, are Italian terms used by musicians to indicate dynamic levels. Extremes of those dynamic levels are written by adding the suffix *-issimo.* In other words, *piano* is soft and ***pianissimo (pp)*** is softer yet. *Forte* is loud and ***fortissimo (ff)*** is even louder. *Mezzo* means medium, so ***mezzo piano (mp)*** is medium soft and ***mezzo forte (mf)*** is medium loud. These dynamic levels are listed below, from the softest to the loudest:

| | |
|---|---|
| *pianissimo* | *pp* |
| *piano* | *p* |
| *mezzo piano* | *mp* |
| *mezzo forte* | *mf* |
| *forte* | *f* |
| *fortissimo* | *ff* |

**Sound: Dynamics**

Changes in softness and loudness levels occur in both popular and classical music. Listen to ways popular music uses dynamics by visiting this Spotify playlist. For information on how to access the playlists throughout, see "*Experience Music*" in the Front Matter, p. XX

spoti.fi/dynamics

Other terms are used to indicate a gradual change in dynamic levels. **Decrescendo,** or **diminuendo,** indicates that the music is getting softer, which can often give the effect of calming tension; and **crescendo** indicates that it is getting louder, which can express exuberance.

Different instruments and voices each have their own distinct kind of sound. A melody played on the flute sounds different from the same melody played on the clarinet because the sound quality of the clarinet is clearly different from that of the flute. The distinctive sound quality of an instrument is called *tone color,* or **timbre** (pronounced *tam-bur*).

## Rhythm

**Rhythm** is the ordered flow of music through time. The regular, recurrent pulsation in most music is called the **beat.** Perhaps the beating of our own heart is the most basic beat we feel. In some music, the beat is pounded out by a drum or other instrument and is so clear that you may find yourself clapping along. That steady beat helps us measure musical time, but the word *rhythm* refers to much more than that. Rhythm includes the way music flows between the beats. Although the presence of a steady beat is common, in some music the beat is not clear at all, perhaps because the composer wished to evoke a smooth or floating effect. We can see such an effect in nature if we watch waves washing up on a beach. The waves do not pound away at any steady sort of beat, but the effect they create is indeed very rhythmic. It is rhythmic because of the sense of flowing motion they create. In other words, *beat* refers to the steady pulse you might hear in music, whereas *rhythm* covers much more about musical time. A beat can be part of rhythm, but rhythm can exist without a beat.

Sometimes individual notes are played on each beat, but notes can also be held for more than or less than a whole beat. In the first phrase of "America," observe the notes that are longer than one beat—the note for the word *'tis,* for example. Also notice that the longer notes are followed by notes that are held for less than one beat, such as the note on *of.* The word *liberty* has three notes of varying lengths, and *sing* is held for a full three beats.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | "My | country | 'tis | of | thee, | sweet | land | of | li- | | berty. | Of | thee | I | | sing." | | | |
| Beats: | / | / | / | / | / | / | / | / | / | / | / | / | / | / | / | / | / | / | / |

Against this background of regularly occurring beats or pulsations, notes of varying lengths make some beats sound more prominent—or "heavier"—than others. That does not necessarily mean that those notes should be played louder; they usually stand out because of the patterns of long and short notes. In the case of "America," the first of every three beats is given more weight. The following example groups the beats into patterns of three.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | "My | country | 'tis | of | thee, | sweet | land | of | li- | | berty. | Of | thee | I | | sing." | | | |
| Meter: | **1** | 2 | 3 | **1** | 2 | 3 | **1** | 2 | 3 | **1** | 2 | 3 | **1** | 2 | 3 | **1** | 2 | 3 | |

This organization of beats into regular groups is called **meter,** and the units themselves are called **measures.** Different types of meters are defined by the number of beats in

the measure. The example we heard in "America" is called **triple meter** because it consists of three beats per measure. The first beat of each group, the one that carries more weight, is called the **downbeat.** On the recordings that came with your book, "When I Am Laid in Earth" from Henry Purcell's opera *Dido and Aeneas* is in triple meter. Listen to it and see if you can hear the meter.

When music has two beats in each measure, which means an accent on every other beat, it is in **duple meter.** "Mary Had a Little Lamb" is in duple meter.

| | "Mar-y had a | little | lamb, | little lamb, | little lamb, | Mar-y had a | little lamb, | Its fleece was | white as | snow." |
|---|---|---|---|---|---|---|---|---|---|---|
| Meter: | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 |

The first movement of Mozart's Symphony no. 40 is in duple meter. Listen to it and see if you can hear the meter.

Music played to a four-beat measure is in **quadruple meter,** which can sound a lot like music in duple meter because the groups of four beats are usually also two groups of two beats. There is, however, a difference: in duple meter, every other beat is a downbeat, but this is not the case in quadruple meter. The four beats of quadruple meter begin with a strong downbeat followed by a weaker second beat. The third beat is stronger than the second or fourth beats but not as strong as the downbeat. The following example of quadruple meter also has a short note before the downbeat. That short note is called an **upbeat.**

| | "Mine eyes have seen the glory | of | the | coming of the Lord. | He has . . ." |
|---|---|---|---|---|---|
| Meter: | **1** 2 **3** 4 | **1** | 2 **3** | 4 | |

"Comfort Ye" from George Frideric Handel's *Messiah* is in quadruple meter. Listen to it and see if you can hear the meter.

Meters other than duple, triple, and quadruple exist but are less common than those three. **Compound meters** subdivide the basic beats into sets of threes. Two groups of three are counted as six beats, and three groups of three are counted as nine beats. **Irregular meters,** in which beats are accented in groups of five, seven, or other numbers, can be found, particularly in music after the early twentieth century. By the late twentieth century, some music avoids any accenting of beats or meter at all.

Earlier in this chapter, we touched on the term *accent.* Ways of accenting a note include playing it louder or longer than its surrounding notes. Accents cause notes to stick out and grab our attention. Sometimes composers accent notes that are played between, rather than directly on, the steady beat. This effect is called **syncopation.** The beginning of Stephen Foster's song "Camptown Races" is syncopated: both times "dah" is sung, it comes before the beat, though the listener most likely expects to hear it on the beat. You could sing the song with the "dahs" exactly on the second beats, but the effect would lack the energy added by the syncopation. The lyrics and beats follow:

| | "Camptown ladies | sing this | song, | doo dah, | doo dah" |
|---|---|---|---|---|---|
| Beats: | 1 2 | 1 2 | 1 2 | 1 2 | 1 2 |

All aspects of rhythm are very much affected by the **tempo,** or pace, of the music. The tempo is the rate or speed of the beat. If the beat is short, the tempo is *fast;* if the beat is long, the tempo is *slow.* Indications concerning tempo are usually given in Italian and most often appear at the beginning of the piece, though they may also appear in other sections, particularly if the tempo changes abruptly:

| | |
|---|---|
| very slow: | ***largo*** (broad) |
| | ***grave*** (grave, solemn) |
| slow: | ***lento*** |
| | ***adagio*** (leisurely; literally, "at ease") |
| moderate: | ***andante*** (at a walking pace) |
| | ***moderato*** |

**Meter: Triple**

Triple meter is less common than quadruple meter in popular music, but examples can be found. Listen for the triple meter in popular examples in this Spotify playlist.

spoti.fi/triple

**Meter: Duple**

Duple meter is often used for marches because it stresses the "left, right" movement of people marching together. Listen to examples in this Spotify playlist.

spoti.fi/duple

**Meter: Quadruple**

Quadruple is the most common meter used in popular music, particularly rock music. Listen to examples in this Spotify playlist.

spoti.fi/quadruple

**Meter: Irregular**

Irregular meters are not common in popular music, other than in some jazz styles. Listen to examples on Spotify and try to count the beats to determine the meter.

spoti.fi/irregular

**Sound: Syncopation**

Placing accents where the listener does not expect them adds rhythmic interest to music. Listen to examples in popular music and notice notes or words that seem to be misplaced from the steadier beat.

spoti.fi/syncopation

**Sound: Tempo**

Tempo has a big impact on the mood of the music. Listen to examples with extremes of slow and fast tempos and compare the effect.

spoti.fi/tempo

| | |
|---|---|
| fast: | ***allegretto*** |
| | ***allegro*** (faster than allegretto; literally, "cheerful") |
| very fast: | ***vivace*** (vivacious) |
| | ***presto*** (very quick) |
| | ***prestissimo*** (as fast as possible) |

These basic terms are often accompanied by the following modifiers: *molto* (very), *meno* (less), *poco* (a little), and *ma non troppo* (not too much). For example, *allegro molto* is very fast; *poco adagio* is somewhat slow; and *allegro non troppo* is fast but not too fast. *Accelerando* (getting faster) and *ritardando* (becoming slower) indicate gradual changes in tempo. To reestablish the original tempo, the term *a tempo* is used.

Tempo can be altered in other ways. The term **rubato** indicates freedom to move ahead and fall behind the tempo, and the symbol 𝄐 (**fermata**) tells the performer to hold the note longer than its normal time value—momentarily suspending the meter and tempo. As was the case with dynamic indications, tempo indications are approximate and relative, leaving a great deal of discretion to the performer.

## Melody

We can define a **melody** as a series of notes that add up to a recognizable whole. Whereas rhythm measures the flow of music in time, melody fits into a given rhythm by adding a series of pitches that we might enjoy humming along with. We often will remember the melody—whether it is sung with words or played instrumentally—better than any other aspect of the music.

Melody gives music a sense of physical movement as it progresses forward in time. Different melodies follow different patterns of movement. Those that move from one note to another in a major scale (*do* to *re* in the *do-re-mi* scale, for example) move by steps. When the notes of a melody skip notes (or steps) of the scale (from *do* to *mi* or some other note in the scale), they are moving by leaps.

Another aspect of melody has to do with the way notes connect with one another. If the notes flow naturally and smoothly from one to the next, we say the melody is played or sung **legato.** If the notes sound "choppy"—that is, short and detached from one another—we say the melody is played or sung **staccato.** We will hear many examples of each of these effects as we explore the musical examples in this book.

Melodies are often made up of shorter sections called **phrases.** When a phrase or a melody ends with a sense of finality, that resting point is called a **cadence.** In the song "Row, Row, Row Your Boat," for example, the two phrases are equal in length, with the second phrase sounding like a completion of the first. The phrases are identified by letters of the alphabet—"a" for the first phrase and "b" for the second. When you sing the song, notice that the end of the "a" phrase does not sound complete, but rather sets us up to expect the "b" phrase. That type of seemingly incomplete ending is called an *incomplete cadence.* The entire melody ends with a complete cadence.

phrase "a": "Row, row, row your boat gently down the stream,"

phrase "b": "Merrily, merrily, merrily, merrily, life is but a dream."

Sing the melody to "Row, Row, Row Your Boat" again and notice that there is a sense of energy on the first "merrily." This energy is created by the fact that that note is the highest note in the melody. Such a melodic high point is called the *climax.*

When a melody is made up of two very similar phrases, we do not use the letter "b" for the second phrase. Instead, we identify it as a varied version of the first phrase by calling it "a′." Such is the case with the song "Mary Had a Little Lamb."

phrase "a": "Mary had a little lamb, little lamb, little lamb,"

phrase "a′": "Mary had a little lamb; its fleece was white as snow."

Of course, many melodies are much more complicated than the two we have cited. Some melodies are made up of phrases of unequal lengths. Sometimes, too, we find melodic patterns repeated at different pitch levels. This is called a **sequence.** The song "America" uses a sequence. The phrases "Land where my fathers died" and "Land of the Pilgrim's pride" are sung to the same melodic pattern, but the second phrase is sung at a lower pitch than the first.

The melody is an extremely important part of any piece of music. In a long composition, some melodies assume greater importance than others. A melody that serves as the starting point for an extended work is called a **theme.** In the course of a musical composition, important themes may be stated and restated in many forms.

## Harmony

If melody is the horizontal aspect of music, **harmony** is the vertical. That is, instead of sounds in succession, harmony involves notes sounding at the same time. Most Western music depends on harmony to help enhance its expressiveness.

We have defined *interval* as the distance between two notes in a melody, but we can also use it to refer to the distance between notes that are sounded together to make harmony. Thus, harmony is a composite sound made up of two or more notes of different pitches that are played or sung simultaneously. The smallest harmonic unit is one consisting of two notes, but we usually have three or more notes played or sung together to create harmony. These groups of notes make up what we call **chords** (pronounced "cords"). A series of chords is called a **chord progression.**

The simplest chord is the **triad.** It is made up of three notes that are usually spaced one note apart—*do, mi,* and *sol* in the *do-re-mi* (major) scale, for example. The first note of any scale—in this case, *do*—is called the **tonic** note. The triad built on the notes beginning with *do* is, therefore, called the *tonic chord.* Tonic chords sound very stable and are traditionally played at the end of a musical composition to supply a sense of conclusion to the harmonic progression.

Chords can be broken up so that their notes are played one at a time instead of all together. This is called an **arpeggio.** Arpeggios can be used to accompany melodies or they can create a melody themselves. The melody to the words "Oh say can you see" from "The Star-Spangled Banner" is composed out of an arpeggio because all of the notes come from a single—in this case, tonic—chord.

An important quality of a given harmony is its degree of consonance or dissonance. A combination of notes that is considered stable and without tension is called a **consonance.** A combination of notes that is considered unstable and tense, so much so that they sometimes sound as if they are fighting with one another, is called a **dissonance.** Dissonance adds variety and a sense of forward motion to music. Dissonance usually occurs as a transient tension in a harmonic progression. *Resolution* usually refers to a dissonant chord moving to a consonant chord. The movement from dissonance to consonance can give a sense of dramatic or psychological resolution, like seeing the villain get what is coming to him or her in a movie.

The general character of most pieces is consonant, even though they may feature some dissonance. Franz Joseph Haydn's String Quartet, op. 33, no. 3, is a good example. Listen to its fourth movement on the recordings that accompany your book and notice that the music sounds as though the notes all fit together into a pleasing harmonic unit. Other works are predominantly dissonant, such as John Cage's Sonata V from *Sonatas and Interludes for Prepared Piano.* When you listen to Cage's work, you will hear many groups of notes that clash against one another, creating much tension. As we move through music history from century to century, we find that the relationship of consonance and dissonance begins to change, with a gradual increase in the importance or prevalence of dissonance as we approach the twentieth century.

## Summary

Music is made up of many different, and simultaneously present, elements. When we listen to a melody, we are also listening to the rhythm on which that melody is based. That rhythm can be a steady beat, and it may or may not fall into a particular meter (pattern of accented notes). The melody itself is composed of a series of pitches that might fall in a very narrow range of notes (close to one another), or the melody might jump around from very high to very low notes. Either way, listening for both melody and rhythm adds to the enjoyment of music.

Tempo is an important part of rhythm. Many longer pieces of music are made up of several sections of contrasting tempos. One section might be fast and lively, and the next section might be slow and smooth. Another fast section might follow to add contrast and balance.

A single piece of music might vary in dynamic levels. A melody might create a sense of tension by beginning softly and then gradually reaching a crescendo. Dynamic contrasts add to the expressiveness of music in much the same way that a dynamic speaker might shout part of the time and speak slowly, softly, and directly at other times.

Harmony is the vertical aspect of music—the notes that are played together to accompany the melody. Harmonies can be consonant (sounding as though they fit well together and create a sense of relaxation), or they can be dissonant (sounding as though the notes are all fighting one another). Most music includes both consonances and dissonances.

## New Concepts

accent
*adagio*
*allegretto*
*allegro*
*andante*
arpeggio
beat
cadence
chord
chord progression
compound meters
consonance
crescendo
decrescendo
diminuendo
dissonance
downbeat
duple meter
dynamics
fermata (𝄐)
*forte (f)*
*fortissimo (ff)*
*grave*
harmony
interval
irregular meter
*largo*
legato
*lento*
major scale
measures
melody
meter
*mezzo forte (mf)*
*mezzo piano (mp)*
*moderato*
note
octave
phrase
*pianissimo (pp)*
*piano (p)*
pitch
pitch range
*prestissimo*
*presto*
quadruple meter
rhythm
rubato
sequence
staccato
staff
syncopation
tempo
theme
timbre
tonic
triad
triple meter
unison
upbeat
*vivace*

# Chapter 2 Elements that Structure Music: Key, Texture, and Form

Music gives soul
to the universe.
—PLATO [CA. 427–348 BCE]

We have seen that music emerges from combinations of four basic elements: sound, rhythm, melody, and harmony. In this chapter, we explore the ways these elements combine to give structure to complete pieces of music. For example, you have learned that pitches come together to form scales, which are the basis of many melodies. We now expand the idea of the scale into what we call a key, or tonal center, for an entire musical composition. Similarly, when we discussed melody, we dealt with single melodies. Now, we discuss music that has more than one melody at one time, creating a denser texture. Our discussion of melody also showed that melodies are often made up of repeating or contrasting phrases. When we view a complete composition, we see how melodies are sometimes repeated and contrasted to give the music a sense of structure that we call *form.*

## Key

One of the fundamental characteristics of Western music is its reliance on **tonality** as an organizing element. *Tonal music* is characterized by the presence of the *tonic,* the central note around which a specific musical composition is organized, and of a chord built on that note, called the *tonic chord*. The tonic chord acts as the musical center of gravity, a kind of home base in that when it is played it can give a sense of completion to the music. If the tonic note is C, we say that the melody is in the **key** of C. In other words, *key* and *tonality* refer to the central note, scale, and chord.

Melodies are usually based on the notes in a particular scale. The notes from one C to the next C on the white keys of the piano make up the C **major scale.** The C major scale has a particular sound because of the placement of the black keys between the white keys on the keyboard (see Figure 1.1). When two adjacent white keys have a black key between them, they are a whole step apart. When two adjacent white keys have no black key between them, they are a half step apart. The distance between any note and the next possible note, black or white, is also a half step. A whole step is made up of two half steps, represented by the black key between the two white ones that are a whole step apart. The major scale (*do-re-mi* scale), then, is made up of the following pattern of whole and half-step intervals: *w - w - h - w - w - w - h* (Figure 2.1).

Another common type of scale is the **minor scale,** which resembles the major scale but has a number of lowered notes. When a note is lowered, it is played on the black key to the left of the white one, lowering its pitch by one half step. The notation of a flat sign (♭) indicates the notes that are lowered. This lowering of some notes gives a minor melody a different sort of psychological effect from a major melody. The lowered notes can sound a bit sadder than the notes in a major scale, although that is certainly not always the case.

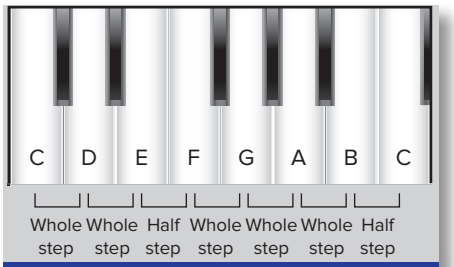



**Figure 2.1** The major scale made up of whole and half-step intervals.

To this point, we have been basing our scales on the C tonic, but other notes can be tonic notes too. If we start a major scale on the note D and use it as the basis of our music, we say that the music is in the key of D major. Conversely, if we base our music on a minor scale that begins on the note D, our music will be in the key of D minor. Compositions can be found in major or minor keys based on every tonic note we have.

When we notate, or write, music, we use the flat sign (♭) to lower a note a half step (move it down to the next possible note, usually the next black key to the left) and the sharp sign (♯) to raise it a half step (move it up to the next possible note, usually the next black key to the right). If our entire composition is going to need certain notes to be flat or sharp all the way through, we indicate that at the beginning of each line of music instead of putting the signs in front of each note. This indication is called a **key signature.** When we play a D-major scale, for example, we have to raise (sharp) all of the F and C notes for the scale to sound major (like the *do-re-mi* scale). Because the key signature is printed at the beginning of every line of music, the player knows to sharp all of the necessary notes (F and C in this case) as he or she plays the music. If the composer wants to cancel one of the sharps or flats, a natural sign (♮) is placed before the note.

A scale that includes all notes (on both black and white keys played in order on the piano) is called a **chromatic scale.** This scale is not the basis of a particular key because all of the notes are just one half step apart, and no single note sounds like home base. In fact, a chromatic scale does not have to start or end on any particular note. Because a chromatic scale includes all notes, including many that are dissonant with one another, composers can use it to create dissonance and tension not present in a standard major or minor scale. Composers often use that dissonance for special, dramatic effects.

Sometimes, for variety, longer pieces of music change from one tonal center, or key, to another during the flow of the music. The shift from one key to another within the same composition is called **modulation.** No matter how many times a piece of music modulates, it usually ends by going back to the tonic key with which it began, making use of the sense of home base the tonic creates. In other words, a piece in the key of D major will begin and end with D as its tonic, even though many other keys might have been played in the middle of the piece.

## Texture

**Texture: Monophony**

In popular music, you rarely hear a single melody without lots of accompanying instruments, so it's noticeable when it happens. Listen to examples in Spotify.

spoti.fi/monophony

Like cloth, music is woven of horizontal and vertical strands. We think of melody as moving horizontally because one note follows the next along the flow of time. We describe harmony as vertical because it is based on sounds that occur simultaneously and in combination with one another. **Texture** describes the way the vertical and horizontal strands of melody are interwoven. In this sense, texture combines both melody and harmony. In addition to strands of melody, the term *texture* can refer to how many layers of sound are heard at the same time. Three basic musical textures are commonly found in Western music: **monophony, polyphony,** and **homophony.**

The simplest musical texture is monophony, which literally means "one sound," although in music it means one melodic line with no accompaniment. If you sing or hum by yourself, you are creating monophonic music. Music is also monophonic if a single melodic line is performed by more than one instrument or voice at the same time. In that case, we say that the instruments or voices are playing or singing in unison. We have used the term *unison* before to describe the interval when two identical pitches are played one after the other. Here, the two pitches are played or sung together.

Even if men and women sing the same melody at the same time, with the women singing an octave higher than the men, the texture is monophonic.

On the recordings that accompany your book, the "Dies irae" ("Day of Wrath") chant is an example of monophonic texture. Listen to it and notice that it is sung as a single-line melody with no accompaniment.

When two or more melodies of equal interest are performed at the same time, the texture is polyphonic ("many sounds"). In discussing texture, we often call a single line of music a *voice* because it is a melody that one person could sing. Independence and equality of voices are the defining characteristics of polyphony. *Independence* refers to a voice's ability to compete with other melodic strands for the attention of the listener.

In polyphonic music, we need to listen carefully to the relationship among the independent, simultaneous melodies. Our attention will shift from one melodic line to another, depending on which is most prominent at any given moment. The melodic lines thus enhance and enrich one another, contributing to the expressiveness of the overall sound. The technique of combining several melodic lines into a meaningful whole is called **counterpoint.** The term *contrapuntal texture* is sometimes used in place of the term *polyphonic texture* because notes (points) of each melody tend to move in different directions, countering one another.

Sometimes in polyphonic music we hear one melodic idea presented by one singing voice or instrument and then hear it restated immediately by another voice or instrument. This is called **imitation,** or *imitative polyphony,* because the second voice sounds like an imitation of the first. Several voices can enter the music one after the other, each imitating the first melody.

If you listen to the beginning of "Ave Maria" by Josquin des Prez in the book's recordings, you will hear the gentle beauty and sense of unity that imitative polyphony can create.

Imitative polyphony, in which all of the voices play the same melody all the way through with no variation, is called a **round** or a **canon.** A round is an example of what we would call *strict imitation.* In performance, a first voice begins alone, and when it gets to a particular part of the melody, a second voice starts at the beginning. Similarly, other voices enter one at a time, each singing the same melody from the beginning. Once the earlier voices finish the melody and drop out, the last voice finishes alone, giving a round a very simple beginning and ending with much imitative polyphony in between. "Row, Row, Row Your Boat" and "Three Blind Mice" are songs that are often sung as rounds.

The recordings that came with your book include William Billings's "When Jesus Wept," which is a round. Listen to it and make note of the imitation as new voices enter. Notice that when more than one voice sings, the texture is polyphonic.

In homophonic ("same sound") music, a *single* melodic line predominates, while the other voices or instruments provide an accompanying harmony. The listener's attention is focused on the melody; the harmonic accompaniment is heard as a kind of musical background. Harmonic accompaniment to the melody can take various forms—from the simple strumming of chords on a guitar to a full orchestra playing music that supports, but does not get in the way of, the melody.

Amy Beach's "Ah, Love, but a Day" in the book's recordings is an example of homophonic texture. Listen to it and notice that the primary single melody is sung with piano accompaniment.

Another type of homophonic texture occurs when several melodies are played together in the same rhythm. The rhythm may include the presence of a steady beat or meter, or it may flow gently without a beat but with all of the melodies staying together. Because all of the voices follow the same rhythm patterns, the lower melodies do not stand out as separate from the highest melody, which usually dominates the listener's attention. This type of texture occurs when several people sing a hymn tune

**Texture: Polyphony**

Some music is polyphonic all the way through, but some starts with a monophonic melody that is then imitated to create several melodies at once in polyphonic texture. Listen to examples and notice when you hear more than one independent melody playing at the same time.

spoti.fi/polyphony

**Texture: Homophony**

Homophony is the most common texture used in popular music because it allows the main singer or solo instrumentalist to stand out over an accompaniment. Listen to examples in Spotify.

spoti.fi/homophony

or praise song in church. It is sometimes called *homorhythmic texture* because of the similar rhythms in all of the parts.

Actually, much music employs both polyphonic and homophonic textures. Frequently, a piece of music alternates among textures. An essentially homophonic section, for example, may be followed by a polyphonic section. What is important here is that you understand what the textures are in their clearest examples and then listen for them in the more complex music you will encounter later.

In the recordings that accompany your book, John Farmer's "Fair Phyllis" uses a combination of textures. Listen to it and note that the phrase "Fair Phyllis I saw sitting all alone" is monophonic. The song then turns polyphonic until the last phrase, "Oh, then they fell a-kissing," which is homophonic, with all voices singing in the same rhythm.

## Form

The organization of musical ideas (which are usually melodies but can be some other combination of sounds) in time is called **form.** Sustaining the listener's interest in music depends on the presence of two essential factors: unity and variety. Unity is usually achieved through **repetition** of musical ideas, and variety through the introduction of new, often **contrasting,** musical ideas. Repetition of musical ideas provides an overall sense of unity by engraving an important melody or other musical idea, such as a distinctive rhythm pattern, in the mind of the listener. An important and returning melody in a musical composition is called a *theme.* When a theme is played at the beginning of a piece of music and returns at the end, it gives the music a feeling of balance and symmetry.

**Form: Theme and Variations**

The fun part of listening to music in theme and variations form is to notice how the variations differ from the theme and from one another. Listen to examples and try to remember the theme so you can appreciate the way the variations differ from it.

spoti.fi/theme_variations

In addition to repetition and contrast, **variation** is often an important element in the form of a piece of music. Composers vary themes in any number of ways, but all variation retains some features of the original musical idea. For example, you might hear a piece of music that begins with a melody and simple accompaniment followed by a variation of the melody, or theme. In the variation you will probably still be able to pick out the notes of the melody, but you might hear some of those notes changed, or you might hear them with a different kind of accompaniment. Some very interesting pieces of music are based on a theme and a series of varied versions of that theme. The form of this type of piece is called **theme and variations.**

There are many organizational forms, but two of the most common are the three-part form, called **ternary form,** and the two-part form, called **binary form.** The three parts of ternary form include a beginning section, a contrasting middle section, and then a repeat of the beginning. Binary form has only two parts. Letters are often used to describe these forms. For example, ternary form is usually shown by the letters ABA. The first A represents the section of music at the beginning; the B represents a contrasting section; and the repeat of the letter A indicates that the beginning music returns or is repeated. The second A section does not have to be as long as the first, but it must include the same theme or themes to be considered a return of A. The second A can have some changes in the way the theme(s) are presented: for example, they might be played on different instruments. When that is the case, we diagram the form as ABA′. The A′ stands for "A with some changes." The B section includes different themes from those in A.

Binary form consists of a beginning section followed by a contrasting second section. The two sections can be of equal or unequal length and may or may not be repeated. The simplest example of binary form is diagrammed as AB. Notice that this is different from ternary form because the A section, or beginning music, does not come back at the end of the piece. With repetitions, binary forms can include AABB or AAB or ABB.

## Summary

The melody, rhythm, and/or harmony in music discussed in the previous chapter are held together by an overall structure. Much music we hear today is tonal, which means that the melodies and harmonies fall into a particular key, or tonal center. Long or short sections of the music sometimes change to a new key, although the key of the beginning of a piece of music usually returns at the end to create a sense of balance and finality for the overall composition.

The relationship between the horizontal (melody) and vertical (harmony) aspects of music comes together through texture. A composition's texture is created by a layering of sound. A single melody played or sung alone creates a monophonic texture. Two or more melodies played at the same time, each sounding independent of the other(s), creates polyphonic texture. One melody played with an accompanying harmony is homophonic in texture. Many pieces of music change from one texture to another and listening for those changes adds to our appreciation of the music.

Most compositions have sections that repeat music that was heard before. It is also common to hear music that contrasts or creates a variation on music heard earlier. We determine the form of music by listening for repetition, contrast, and variation. Some forms are easier to hear and recognize than others, but once you learn to listen for repetition, contrast, and variation, you will begin to recognize the composition's larger structure.

## New Concepts

binary form
canon
chromatic scale
contrast
counterpoint
form
homophony
imitation
key
key signature
major scale
minor scale
modulation
monophony
polyphony
repetition
round
ternary form
texture
theme and variations
tonality
variation

Chapter

# 3 Musical Instruments and Ensembles

The flute is not an instrument with a good moral effect. It is too exciting.
—ARISTOTLE [384–322 BCE]

The great variety of musical instruments available to the composer or performer today offers a tremendous range of qualities of sound. Instruments are usually categorized into what we refer to as *families.* The standard families are voices, stringed instruments, woodwinds, brasses, percussion instruments, keyboard instruments, and electronic instruments. In this chapter, we discuss the most commonly used instruments in each of these families. We concentrate on modern instruments; however, most modern instruments have early predecessors, and a few of those predecessors are mentioned in this chapter. We use the year 1750 to mark the break between the use of old and modern instruments because it roughly dates the time period in which some of the older instruments dropped out of favor, the piano came into common use, and the orchestra as we know it today began to develop.

## Voices and Vocal Ensembles

Because it is part of the human body, the voice is, in many respects, our most fundamental musical instrument. The expressive qualities of the voice are greatly enhanced by its ability to combine music and words. Individual voices vary in pitch range, but male and female voice types are generally divided into high, middle, and low registers. Arranged from highest to lowest pitch register, the basic vocal categories are:

| | |
|---|---|
| Female (or boys with unchanged voices) | **soprano** |
| | **mezzo soprano** |
| | **alto** (also called contralto) |
| Male | **tenor** |
| | **baritone** |
| | **bass** |

These vocal types are often written by the first letter of the name: for example, a mixed **choir** that includes both women and men is often called an *SATB choir* because the four voices are soprano, alto, tenor, and bass. A women's choir is often referred to as an *SSA choir* because it includes two groups of sopranos and one group of altos. If the music is composed for two sections of sopranos and two of altos, it is called an *SSAA choir.* A men's ensemble is often referred to as *TTBB* for two groups of tenors and two of basses. We discuss different types of solo singing styles in later chapters.

A concert choir performs in Los Angeles. ©Hill Street Studios/age fotostock

# Stringed Instruments

Stringed instruments can be played by plucking, striking, or bowing the strings. The earliest stringed instruments were plucked or struck, but the sound of a plucked or struck string decays (softens and fades) very quickly. The invention of the bow allowed the instruments to sustain their sound and play smooth and connected melodies. Strings can be made of gut (animal intestines that are dried and twisted), silk, plastic, nylon, metal, or metal wound around nylon centers. Each type of material produces its own distinctive tone quality. Some materials lend themselves to plucking or striking and others to bowing. Silk, plastic, and nylon are so smooth that they do not catch the hairs of the bow very well and therefore are more commonly found on plucked or struck stringed instruments. Gut and metal-wound strings tend to be used for bowed instruments.

The harp
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## Plucked Stringed Instruments

Prior to 1750, the most popular plucked stringed instruments included the *lute* (a halved-pear or bowl-shaped body with a fingerboard), *psaltery* (a flat wooden box with strings across it that were either plucked or struck with hammers, much like the *hammered dulcimer* still in use today), and the *harp* (strings stretched across a triangular frame). All of these instruments were small enough to be held in the lap of an individual player, and they all sounded at a very soft dynamic level. They were used to accompany solo singers, to play in small instrumental ensembles, or to take part in mixed **consorts** (groups of different types of instruments playing together).

Today, the most common plucked stringed instruments are the guitar and the modern harp, which is much larger than early harps and stands on the floor and leans toward the player. They can be played both as solo instruments and in ensembles.

**Guitar**—the acoustic guitar has a figure 8-shaped hollow body and a fingerboard. Electric guitars can have hollow or solid bodies in various shapes.

**Harp**—strings are stretched across a triangular frame with a hollow side to resonate the sound. Harps are often used as part of an orchestra.

## Bowed Stringed Instruments

Three families of bowed stringed instruments were in common use before 1750: the *viol* family (with fat bodies, flat backs, and fingerboards), the *rebec* family (bowl-shaped body with a fingerboard), and the *violin* family (thinner body with a shaped back and a fingerboard). The word *family* is used for each of these types of instruments because they were made in many sizes. The same names we use for voices are used to describe the pitch range of the instruments: soprano, alto, tenor, and bass. A viol consort might include a soprano viol, an alto viol, a tenor viol, and a bass viol.

Of these three historical bowed stringed families, the violin family is most commonly used today. From highest to lowest in pitch range, the bowed stringed instruments include the following:

**Violin**—the neck is held with the left hand, and the tail rests beneath the player's chin.

**Viola**—held in the same way as the violin, but it is larger and produces a lower and somewhat more somber tone quality.

**Cello**—much larger and deeper sounding than the violin or viola, played upright with the body held between the player's knees.

**Double bass**—also called a *string bass,* the largest and lowest-pitched member of the family. Because of its size, the player sits on a stool or stands upright.

These instruments are called *bowed* because their strings are normally played by drawing a bow (a stick with horsehair, which has tiny barbs that catch the string being bowed, attached at both ends) across the string or strings. They can also be plucked by the player's finger, a technique called

The double bass
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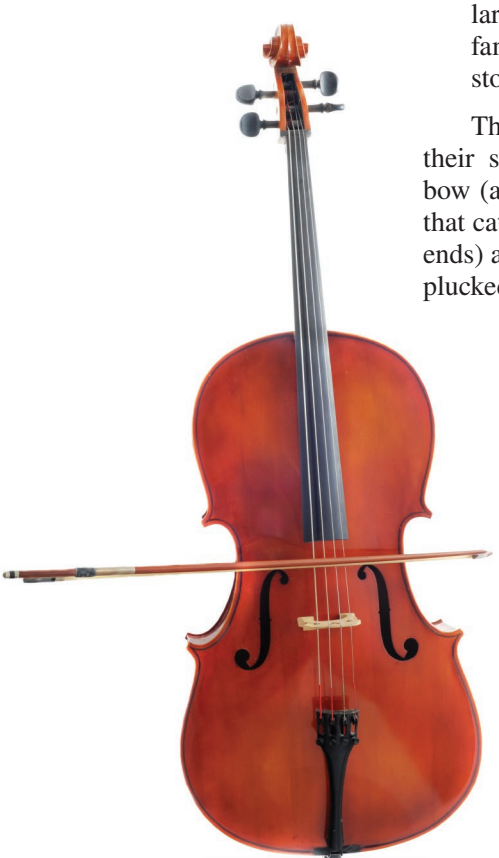

The cello
©Bonzami Emmanuelle/
123RF

The violin
©C Squared Studios/
Getty Images

**pizzicato.** For special effects, they can even be played by striking the strings with the bow, but that is rather rare.

A variety of musical effects can be achieved by using different bowing techniques:

**legato**—smooth and connected up-and-down strokes of the bow

**staccato**—short and detached strokes of the bow

**tremolo**—fast, repeated notes played by very rapid strokes of the bow

The tone quality of each instrument can be made richer or warmer by the use of **vibrato:** rapid vibration of the left hand while pressing the string against the fingerboard. A subdued, velvety tone is produced by the use of a **mute,** a device clamped onto the bridge (across which the strings are stretched) to soften the sound.

## Woodwinds

Woodwinds produce sound when a player blows air through the tubelike body of the instrument. The player opens or closes small holes along the side of the instrument with fingers or pads activated by a key mechanism. In closing or opening these *finger holes,* the player lengthens or shortens the air column, thereby lowering or raising the pitch of the notes produced.

Woodwind instruments in common use before 1750 had few, if any, keys. They included the *transverse flute* (side blown), the *recorder* (a whistle-type instrument blown from the mouthpiece at the end), and instruments such as the *crumhorn, shawm,* and *bagpipes,* often called "the buzzys" because they had double reeds that buzzed against each other, creating a slightly nasal tone quality. Bagpipes also have an air bag and a pipe that plays a continuous note while the other pipes play melodies. The continuous note is called a **drone.** You might think of bagpipes as purely Scottish, but they were in common use throughout Europe during the medieval and Renaissance periods.

The following woodwind instruments are used in modern orchestras:

**Piccolo**—a small, high-pitched flute.

**Flute**—side blown and made out of metal, although early flutes were made from wood.

**Oboe**—played with a double reed of two pieces of thin cane that vibrate against the player's lips.

**Clarinet**—end blown with a single reed on the mouthpiece.

**English horn**—a lower-pitched version of the oboe.

**Bassoon**—also a double-reed instrument, but bigger and lower pitched than the oboe or English horn.

The flute
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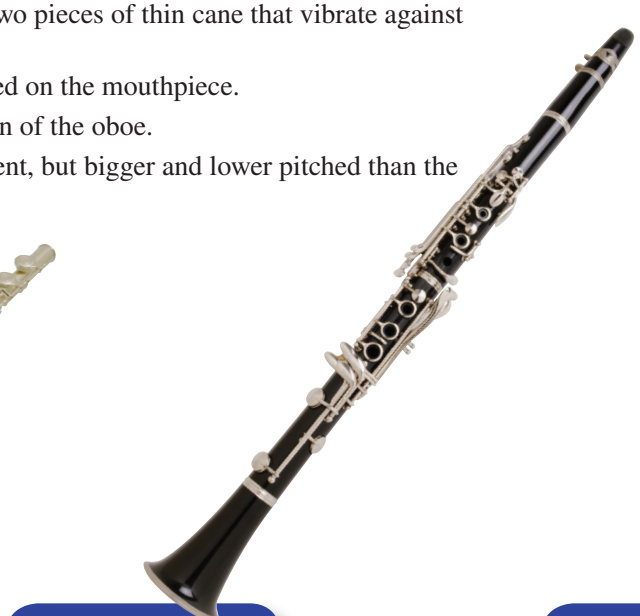

The clarinet
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The bassoon
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**Bass clarinet**—a larger and lower-pitched clarinet.

**Contrabassoon**—a larger and lower-pitched bassoon.

The **saxophone** was invented in the mid-nineteenth century by Adolphe Sax (1814–1894) of Brussels. Although it is made of metal and does not look like a woodwind instrument, a single-reed mouthpiece places it in the woodwind family.

## Brasses

Brass instruments are identified by their cup mouthpiece, against which the player buzzes his or her lips. Early brass instruments were sometimes made from animal horns or carved from wood, though today they are generally made out of metal. Brass instruments in common use before 1750 include the *cornett* and *serpent,* both of which were carved out of wood and covered with black leather. Metal brass instruments of early times included the *trumpet, slide trumpet,* and the *sacbut.* The valves (a set of keys that open or close parts of the instrument's tubing, allowing for easy changes from note to note) we see on many brass instruments today were not invented until 1815. Players of early brass instruments changed notes by adjusting the tension of their lips against the mouthpiece, although they could also cover and open finger holes to help adjust pitches. Players of the slide trumpet and the sacbut changed notes by moving a slide that effectively shortened or lengthened the instrument, thereby raising or lowering the pitch of the note being played.

Brass instruments in common use today include the following (from highest to lowest pitched):

**Trumpet**—the modern trumpet uses valves to move from note to note.

**French horn**—the modern French horn also uses valves to change notes.

**Trombone**—a slide is used to change notes by adjusting the length of tubing.

**Tuba**—a very large and low-pitched instrument that uses valves to change notes.

Other brass instruments, such as the *cornet* (similar to the trumpet) and the *euphonium* (of the tuba family) are used in both concert and marching bands. Both the trumpet and trombone are popular jazz instruments.

The trombone
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The trumpet
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# Percussion Instruments

Whereas the stringed, woodwind, and brass instruments we have discussed have become standard members of the modern symphony orchestra, percussion instruments—those that produce sounds when struck, shaken, or scraped—vary greatly from ensemble to ensemble and from composition to composition. Essentially, percussion instruments fall into two categories: those that produce *definite* pitch or pitches and those that produce a sound without a definite pitch (sometimes referred to as *indefinite pitch*).

Percussion instruments in common use before 1750 included *bells, cymbals* (two metal discs that are hit against each other), *triangles, nakers* (two drums tied around the player's waist and hit with sticks), the *tabor* (a single drum), and *timpani* (large kettle-shaped drums). Of those, the bells, cymbals, and triangles were made of metal. Bells often came in sets of different sizes and produced definite pitches, which meant that they could be used to play melodies. Cymbals and triangles had no definite pitch. Nakers, the tabor, and timpani were drums with animal skins stretched and tightened across them. Nakers and the tabor were not tuned to any particular pitch, although they could produce high or low tones depending on their size. A small naker would sound higher than a larger one. Timpani had screws around the edges that allowed the player to tighten or loosen the drum head in order to raise or lower its pitch, making it one of the few early drums that produced a definite pitch.

The most common percussion instruments found in a modern orchestra belong to two categories: those of definite pitch and those of indefinite pitch.

## Definite Pitch

**Timpani**—also known as *kettledrums.* Usually found in sets of two to five drums of varying sizes. Modern timpani are tuned by pedals that are easier to adjust than screws.

**Glockenspiel**—two rows of steel bars, each producing a definite pitch. A crisp bell-like sound is produced by striking the bars with mallets (sticks with padded tips).


The percussion section of a youth orchestra. ©Odile Noel/Lebrecht Music & Arts/The Image Works

**Celesta**—a glockenspiel with a keyboard that makes it look something like a small upright piano.

**Xylophone**—made of tuned wooden bars that produce a hollow sound when struck by mallets.

**Marimba**—a xylophone with resonators under each bar of the instrument.

**Chimes**—a set of tuned metal tubes suspended vertically in a frame. They are played with one or two mallets, and their sound resembles that of church bells.

**Vibraphone**—a set of metal bars arranged similar to a piano keyboard; it uses an electrical mechanism to produce the instrument's characteristic vibrato (fluctuation of pitch) effect. Vibraphones are used more often in jazz than in orchestras.

### Indefinite Pitch

Percussion instruments of indefinite pitch include just about anything that can be struck, scraped, or manipulated in some other fashion to produce a sound. Those used most commonly today include the following:

**Bass drum**—a large, deep-sounding drum with two heads.

**Side (snare) drum**—a drum that has two heads. The top head is hit with sticks; the bottom head is rigged with metal wires that vibrate against it when the top head is struck.

**Tambourine**—a circular wooden frame, usually with a single head, and metal discs that jingle when the instrument is shaken or struck.

**Triangle**—a triangle made of a bent metal rod, struck with a metal beater.

**Cymbals**—metal discs that ring when they are hit against each other.

**Gong**—also called a *tam-tam,* usually a large suspended metal disc that is struck with a padded mallet.

**Tom-toms**—cylindrical drums with two heads but no snares. Tom-toms are made in many sizes and are played with sticks, mallets, and brushes for different effects.

**Bongos**—a pair of attached small drums, each with one head, played with the hands.

**Congas**—a tall drum with a single head played with the hands.

Percussionists in modern orchestras also have a host of handheld instruments such as the *cowbell,* the *ratchet, sleigh bells,* the *whip* (two pieces of wood that sound like a whip when hit against each other), *castanets,* and many others. Some of these instruments have sounds that relate to familiar images, such as sleigh bells for music depicting a winter scene or castanets to create a Spanish character.

## Keyboard Instruments

Keyboard instruments are played with the hands and can produce many notes at one time. They function well as both solo and accompaniment instruments because they can play both melodies and chords. Several types of keyboard instruments were in use before 1750. One type had strings that were plucked, struck, or even bowed when the player pushed the keys, and another had pipes through which wind blew when the player opened them by pushing the keys. Those whose strings

The harpsichord
©C Squared Studios/
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The piano
©Ingram Publishing/
Alamy

were plucked belonged to the *clavier* family, including the *harpsichord* and the *virginal.* The *clavichord* was a small, soft-sounding keyboard instrument that had metal tangents to strike the strings. The *hurdy-gurdy*'s strings were bowed by a wooden wheel that the player cranked with one hand while playing a keyboard with the other. It also had drone strings that played without the keyboard, giving it an almost bagpipe-like sound.

Keyboard instruments with pipes fall into the general category of *organs.* Organs have bellows to push air through the pipes in much the same way that woodwind players blow into their flutes, oboes, or other instruments to produce sound. Organs vary greatly in size. Little portative (portable) organs have short keyboards that the player plays with one hand while pumping the bellows with the other. The large organs we find in churches often have many sets of pipes and consequently make a great variety of sounds available to the player. Some organ pipes even have double reeds, giving them a buzzy tone quality.

The most common keyboard instruments in use today are the piano and the organ:

**Piano**—a keyboard instrument developed during the mid-eighteenth century. Hammers hit the strings when the keyboard is played. The hammer mechanism allows the player to vary the dynamic level of the music. It was originally called a *fortepiano* or a *pianoforte;* both terms refer to the dynamic levels of *piano* (soft) and *forte* (loud).

**Organ**—originally, wind instruments played with a keyboard, though today they often produce their sound electronically.

## Electronic Instruments

One of the most powerful and far-reaching forces in music during the twentieth century was the application of electronics to the performance, reproduction, and creation of sound. Electronic instruments fall into two general categories: (1) instruments that produce acoustic sounds that are modified electronically and (2) instruments that generate sounds using electronics. Some instruments in the first category are guitars, keyboards, and woodwinds. The second category includes the Theremin as well as any number of sound sequencers and synthesizers.

Electronics are used to both modify the tone quality of these instruments and make them louder. The tone can be altered by pushing the sound through an amplifier that adds qualities such as vibrato or fuzztone. The wah-wah pedal, used to give music an undulating dynamic, became popular during the 1960s.

There were obviously no electronic instruments before 1750; however, the first electronic instrument, the kind in the second category mentioned previously, was invented much earlier than you might think. In 1860, Hermann Ludwig Ferdinand von Helmholtz (1821–1894), a German physicist, invented the Helmholtz Resonator, which used electromagnetically vibrating metal spheres to produce complex sounds. The Helmholtz Resonator was followed by other inventions, including a tone wheel in which a disc rotating through a magnetic field created a tone. The tone wheel principally influenced the development of the Hammond organ in the 1950s.

A vacuum tube capable of amplifying radio signals was invented in 1906. This made radio broadcasting possible as well as early televisions and computers. Vacuum tubes are still sometimes used to transmit extremely high frequencies, and some audiophiles still prefer the sound of amplifiers with vacuum tubes to solid-state circuitry. The transistor, which can be used for amplifying as well as generating sounds, was invented in 1947. Small transistor radios became widely popular in the early 1960s. Transistors allowed for the invention of several types of music **synthesizers.** A synthesizer can imitate natural acoustic sounds, or it can design new sounds. Some early synthesizers were played by keyboards and others by touch-sensitive contact pads. The earliest synthesizers could produce only one note at a time, so it took the mixing of several recordings to produce music with full chords or multiple melodies.

Much electronic music is recorded—rather than played live—because composers like to experiment with various sounds and then mix the sounds they want to create the final composition. In recent years, composers have used computers to create just about any sound or effect they desire. Those sounds can imitate the tone qualities of natural acoustic instruments, or they can create completely new combinations of sounds. Computer software has also advanced, and musicians can now create electronic sounds during a live performance.

## Instruments in Non-Western Cultures

When we discuss instruments used in non-Western cultures, we generally categorize them differently from those used in Western cultures. For example, instead of dividing the two groups of woodwind and brass, we put all non-Western wind instruments into one category. We also do not separate percussion instruments into pitched and nonpitched groups. The following categories are generally used in discussions of non-Western instruments:

**Chordophones**—all stringed instruments, including those that are plucked, struck, or bowed.

**Aerophones**—wind instruments of all kinds.

**Idiophones**—solid instruments that are hit, struck together, shaken, scraped, rubbed, or have a hard extension (such as a piece of metal attached to the instrument) that is plucked to produce their sounds.

**Membranophones**—drums that produce their sounds by the vibration of a membrane that is stretched across all or part of the instrument.

The music of non-Western cultures is a study in itself. In this book, we discuss non-Western music as it influenced Western music of the twentieth century, when music and instruments from several non-Western cultures became an important source of new ideas for Western composers.

# Instrumental Ensembles

## Chamber Ensembles

**Chamber music** is a general term for small groups of instruments in which only one voice or instrument is assigned to a part. Chamber groups are small enough for the players to hear one another, so they do not need a conductor to keep them together. Chamber groups go by many different names; some give a clear indication of the instruments in the group, and others do not. A *string quartet,* for example, is a group of four players of bowed stringed instruments, but a *piano trio* is not necessarily composed of three pianos, although it might be. Usually, a piano trio is made up of one violin, one cello, and one piano. A much more complete discussion of chamber music is presented when we listen to a movement from a string quartet, by the classical composer Joseph Haydn.

## The Orchestra

An **orchestra** is a group of instruments from different families. The orchestra began to develop during the seventeenth century, when several bowed stringed instruments played together with whatever woodwind and/or brass instruments the composer chose to include. These early orchestras usually made use of a keyboard instrument such as a harpsichord or an organ.

In the middle of the eighteenth century, the orchestra became more standardized. The strings remained dominant, but the woodwind and brass instruments took on an increasingly important role. Timpani were also added, often to play in support of the majestic-sounding brass instruments.

In the early nineteenth century, many inventions helped to expand the range of woodwind and brass instruments, and musicians could more easily play in tune. By the second half of the nineteenth century, the orchestra had grown extensively in both size and makeup and included many more percussion instruments than it had in past centuries. Today's symphony orchestra consists of a nucleus of as many as one hundred players, with additions and subtractions made to suit the requirements of individual pieces. The players are distributed according to the plan in Figure 3.1.

## The Wind Ensemble

**Wind ensembles** (also called *concert bands* or *symphonic bands*) are made up primarily of woodwind, brass, and percussion instruments. The only bowed string instrument used in most wind ensembles is the double bass. Although a great body of music has been composed expressly for wind ensembles, much orchestral music has also been

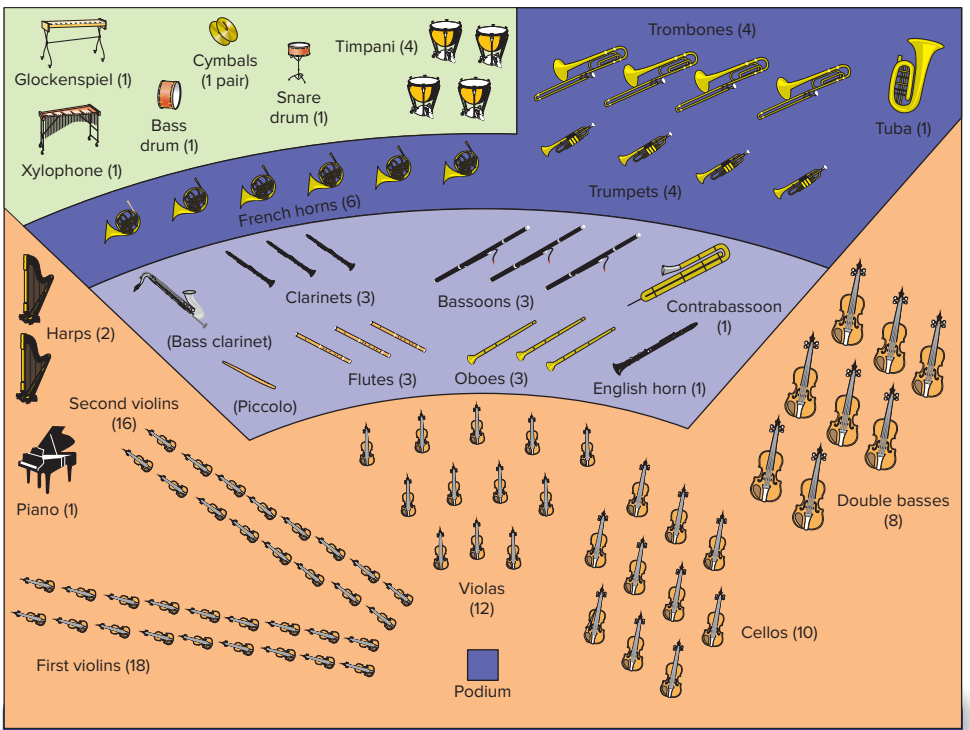


**Figure 3.1** Distribution of musicians in an orchestra.

arranged to be played by wind ensembles. It can be quite interesting to hear the same piece played by an orchestra and then by a wind ensemble.

## The Conductor

Large ensembles such as orchestras, wind ensembles, and choruses require the leadership of a **conductor.** Standing in front of the musicians, usually on a podium, the conductor directs the ensemble and is responsible for all aspects of the performance. The craft of conducting is complex, and conducting techniques and styles are highly individualistic and vary widely. In general, the conductor's right hand indicates the tempo and basic metrical structure of the music. With the left hand, the conductor cues the entrances of instruments, guides the shadings or dynamics, and indicates other nuances involving the expressive character of the music.

## Summary

In this chapter we have discussed the types of instruments we will be hearing in the musical discussions to follow. Instruments are categorized by families or types according to the ways in which they produce their sound. Common families include stringed instruments (both plucked and bowed), woodwinds, brasses, percussion instruments (with either definite or indefinite pitch), keyboard instruments, and electronic instruments. Voices are categorized by their vocal ranges, from high voices to low. These ranges include soprano, mezzo soprano, alto, tenor, baritone, and bass.

A great number of combinations and groupings are common with both instrumental and vocal music. Chamber ensembles include trios, quartets, and a number of other small groups, with usually one voice or instrument assigned to a part. Larger groupings, such as the orchestra, wind ensemble, or chorus, often have several voices or instruments performing a single part.