

# **Understanding the Wild Things Next Door: The Nature of Houston and the Music Of Our Natural Surroundings**

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## **INTRODUCTION**

According to entomologist Edward O. Wilson, human beings are all biophilic; that is, we are all born with an innate sense of loving nature.

Because humanity evolved in nature over millions of years, there is every reason to expect that we possess an innate capacity to draw deep excitement and pleasure from experiencing it . . . our survival depends on understanding and protecting the rest of life. (Leslie and Roth vii)

As we watch children at play, especially when they are given a natural habitat to explore, this love of nature is obvious. At one time in our nation's history, children were able to explore the natural world more freely. Opportunities were more readily available for a child to dig up the earth and bring what was in it home with him on a lazy afternoon, catch minnows, frogs, or crawfish in a pond or stream, and throw them back in again. Children still sit out under the stars, but usually in the company of tall skyscrapers. The sense of wonderment is still there as they repeat the words of the familiar song, "Twinkle, Twinkle, Little Star," and ask "what they are."

But now, over eighty percent of Americans dwell in the city. Urbanites and their children no longer can have immediate access to nature. Many city dwellers have not been enriched with the natural environment like generations before them. Instead of experiencing a steady stream of clean water or a soft, fresh, southerly wind, we hear a steady hum of noise from the traffic and machines that pollute the air and desensitize us to our origins. Our urban children have an innate curiosity about the natural world, and yet, very few opportunities to fully understand or appreciate it.

I believe that music is also innately human and is one of the most natural elements of our universe. We are all born with an innate sense of loving music because the very rhythms of our physical being and the sounds we use to express feelings communicate life itself. The steady beat of our hearts, the inner workings of our own bodies, and indeed the circadian rhythms of life provide us with a personal understanding of musical patterns and sound sequences. Outside of our own physical beings, we observe other elements of nature: daily changes in light, predictability of the seasons, ebb and flow of water, the effect of the wind on trees, and if we are diligent, the barely discernable changes in earth forms:

Life sings and improvises from molecules to galaxies. Sound speaks to us yet has nothing specific to tell . . . we will not survive as artists or as species if we cannot become a part of the world that surrounds us. (Rothenberg and Ulvaeus 3-4)

As technology imposes more and more, as our urban pathways are covered with rigid concrete, and as the wildlife tries to adapt to the constant changes, our response to our environment has changed. Music has become a series of derivative electronic as well as sonic impulses, and we are in danger of losing the natural environment that has inspired our musical expression. In addition to losing our own connection with a natural environment, many studies have shown that the effects of noise pollution on wildlife and domestic animals have had an adverse impact. According to one study researched by the federal government, exposure to continuous loud noise changed the vocal behavior of male canaries (*serinus canarias*). Long exposures led to high-frequency deficits. When the exposure was stopped, however, the canaries recovered their abilities to hear their own songs (U.S. Department of the Interior 51).

As educators, we are challenged to bring opportunities to our students that will help them become conscientious citizens of the world. They must know how the natural world co-exists with and supports our present urban environment. When the child's curiosity about nature is coupled with the imaginative spark of musical expression, exploration of our environment becomes irresistible. We become inextricably linked with the sights, smells, tastes, textures, and sounds of our universe. Sounds put us in a place or time that we may have experienced before. In language, the tone of the sound comprises forty percent of the communication; body language fifty-three percent, and the words only seven percent (Covey 171). The tone, the rhythm, and the cadences of sound create in us an emotional response, and some would even suggest a spiritual response.

## **MUSIC AND NATURE AS INSEPARABLE ENTITIES**

The theme of my curriculum unit will be to explore how we relate to nature and music as inherently inseparable entities. The harmonic series, which is the basis of our Western notational system, "is not arbitrary but a confluence of the way sound behaves and the range of the human ear; our physical properties bind us inextricably to nature" (Rothenberg and Ulvaeus 10).

Students will discover exactly how music may represent the sounds and silences of our physical world. They will become aware of what patterns, sequences, systems, and properties both science and music have in common. Our music reflects what we experience in the world; the patterns that we see and hear in nature are duplicated in our music. All around us we hear animal, bird, and insect sounds; the wind, the rain and changes in the seasons bring their own unique rhythms. The vocalizations of humans have their own special meaning as we talk, sing, shout, whisper, or sit quietly and breathe deeply.

As students become more aware of natural environmental surroundings, they will recognize how its rhythms and vibrations affect them. They will learn the difference between organized and unorganized sounds, distinguish between what is desirable and what is not, and identify sounds that may be necessary for survival. Invented by mankind, music can be structured or improvised, affecting our emotions and physical state. Sounds of the natural world around us, although not created by us, have the same effect on our emotions and physical being. Survival depends on the ability to communicate: humans sing and cry, birds call, wolves howl, and owls screech. The steady beat of life carries its own significance.

The students will know more about the environment as they experience how music helps us express our relationship with the world. By studying the science of music, students will appreciate the significance of it in their lives. “There is music in nature and nature in music. What may be most wonderful is that we can love and be immersed in both without needing to understand how the two are forever intertwined” (Rothenberg and Ulvaeus 10)

## **UNDERSTANDING OUR WORLD OF SOUND**

What exactly is sound? According to *Grolier Online*, sound is a series of pressure changes. Another way to define sound is to say that sound is the physical movement of molecules through matter that creates a vibration. *Encarta Online* defines sound by its physical characteristics:

Any simple sound, such as a musical note, may be completely described by specifying three perceptual characteristics: pitch, loudness (or intensity), and quality (or timbre). These characteristics correspond exactly to three physical characteristics: frequency, amplitude, and harmonic constitution, or waveform, respectively. Noise is a complex sound, a mixture of many different frequencies or notes not harmonically related. (“Sound”)

As physicists come closer to explaining how energy in the universe functions, and perhaps knowing the origin of life itself, many of them support the idea of what is called *The Superstring Theory*. In the world of quantum physics, particles of energy called “Plank-lengths” are wrapped like donuts in groups of three or more pieces, and vibrate just like strings. The plank-length is a bundle of energy that is approximately 10 to the negative 33 centimeters and has a tension of 10 to the 39<sup>th</sup> power tons. (Greene 419)

This theory could be used to support the argument that music, or sound vibration, is at the very core of how the universe creates the energy of life. In the chapter “Nothing But Music: The Essentials of the Superstring Theory” of Greene’s *The Elegant Universe*, the connection between musical vibrations and theoretical physical properties of the universe is explained:

The winds of change, according to Superstring Theory, gust through an Aeolian Universe . . . the strings of the String Theory are so small—on average they are about as long as the plank-length—that they appear point-like even when they are examined with our most powerful equipment. (135-136)

Following the guidelines for recording sounds set in Bernie Krause’s book entitled *Wild Soundscapes*, students will document various sound sources on the school campus. Numerous examples of “soundscapes” can be found on the accompanying compact disc included with the Krause’s narrative. Other activities for students during this semester-long course of study include the creation of a “Sound Effects Machine.” Essentially, this “machine,” a decorated cardboard carton full of sound sources and taped audiocassettes, will serve as a system for gathering sounds and documenting them on an audio tape recording.

There are many recordings of birdsong and bird calls available, which may be used to supplement the student-produced audio recordings. For example, by listening closely to the song of the Texas state bird, the northern mockingbird (*Mimus polyglottos*), students will be able to notate the following musical pattern, play it on a keyboard or soprano recorder, or sing it using *solfege* syllables. When the pattern has been practiced and mastered, students will record it on an audiocassette. The following patterns are my interpretation of the sound sampling of the northern mockingbird recorded by Lang Elliott for the *eNature.com* web site:

Solfege: Do-sol, do-sol, do-sol, do----. Si----, si----, si-----.  
Pitch: F----C, F----C, F----C, F-----. C#----,C#---,C#-----.  
Rhythm: ti\_\_ti, ti\_\_ti, ti\_\_ti, ta\_\_\_\_, ta\_\_\_\_, ta\_\_\_\_, ta\_\_\_\_\_  
(short, short, short, short, short, short, long. Long, long, longer)

The northern mockingbird is known for imitating most any sound that it hears, including tree frogs, barking dogs, crickets, tractors, sirens, pianos, cell phones, and alarm clocks. According to information gleaned from the Audubon field notes web page, this eleven-inch, soft gray and white bird is capable of imitating between eighty to 200 song types at a time. The male bird uses vocal mimicry as a mating call and to mark territorial space (Olmstead). It would be fun to create a mockingbird musical composition incorporating numerous other environmental sounds, like cellular telephones ringing all day long.

Other environmental sounds will also be useful in creating an original musical play or *operetta*. During this activity, students will become focused listeners and will develop a personal awareness as they document their own urban environmental setting. Found objects or specific musical instruments may be used to create these sound effects. The “machine” will be used to demonstrate a vocabulary of sounds and silences. After identifying specific sound settings in the urban environment and capturing these sounds on a tape recorder, the students will classify each sound into a category of their own

description. The sound could be “funny,” “unusual,” “irritating,” “very pleasing,” or any other description that fits it. For example, the sounds of traffic on a busy street corner will be recorded and the rhythmic patterns notated. Percussion instruments will be used to approximate what is recorded.

After collecting a variety of samples, students will be encouraged to create a musical composition using those “sound bytes.” Using computer technology, students will notate their original works with a software program designed for this purpose, and burn a compact disc of their compositions that will be distributed to members of the school community.

In addition to the musical composition that students will create, a “Nature Songfest” will be organized to provide an opportunity for students to sing songs inspired by the diverse experiences of Americans as they explored the topographical features of their new land. These songs will help students learn about national landmarks, forests, rivers, and places on the map they have never been to. Some examples of the songs are “Roll On Columbia,” “Oh, Shenandoah,” “Down in the Valley,” “Springfield Mountain,” “Coffee Grows on White Oak Trees,” “The Old Settler’s Song,” “Home on the Range,” and “The Boatman.” In addition to learning about nature, an environmental awareness will be fostered using Earth Day songs that address issues of pollution, preserving the animal kingdom, and respecting the planet. Some of these songs include “Evergreen, Everblue,” “Pretty Planet,” “Sea World Songs,” “Nature Nuts,” “This Land is Your Land,” “A Frog’s Tale,” and many others (*Kids Domain/Earth Day*).

During the study of natural science, students will write lyrics to songs explaining characteristics of certain animals, plants, and non-living things. These songs will enhance memorization of facts about animals, plants, and non-living things. Each student will select a favorite animal and write a rhyming verse telling about the animal and its characteristics. When the poem has been completed, the student will add rhythm patterns to fit the word patterns, as demonstrated in my original example:

### *The Great Horned Owl*

Perch-ing high u-pon a tree,  
(Ti-ti, ti-ti, ti-ti ta--)  
Great Horned Owl looks at me.  
(Ti-ti, ta--, ti-ti, ta--)  
Hearing ev’ry sound below,  
(Ti-ti, ti-ti, ti-ti, ta--)  
Far and near, now off he goes!  
(Ti-ti, ti-ti, ti-ti, ta--)

Hoo, hoo-hoo-hoo, hoo, hoo,  
(Ta--ti-ti-ti, ta--, ta--)

Hooo, hoo-hoo, hoooo, hoooo.  
(Ta----, ti-ti, ta----, ta----)

In addition to writing lyrics about wildlife, the students will imitate the sounds of certain birds by learning fingering patterns for notes on the soprano recorder, a flute-like instrument. What we can learn about nature calls is that they may be repeated or improvised, according to what the particular species wants to communicate. Many of these natural sounds are what we would interpret as “musical.” The instrumental sounds of the soprano recorder will be interwoven with the vocalizations of students to create an interesting texture of musical sound.

## **MUSICAL EXPRESSION IN RESPONSE TO NATURE**

In the course of history, humans have expressed their relationship with nature through ritual, symbolism, and organized sounds. One purpose of this curriculum unit will be to study how musicians have responded to nature. Starting with the human voice at the heart of earliest musical expression, we will analyze rhythmic and melodic elements as well as imitation and form. As music history unfolded, mankind used his natural surroundings to transform vocal expression into instrumental sounds. As an extension of breathing, man discovered that blowing into something derived from nature transformed vocal expression into an instrumental experience. The earliest bamboo flutes, for example, imitated the calls of birds or other animals and are still used in many cultures throughout the world. The earliest horns were fashioned out of hollowed animal horns and evolved into the brass instruments of the orchestra that we use today.

Students will compare and contrast how various composers and musicians have responded to their own environment throughout music history. Starting with examples of musical compositions from the six main periods of Western Music History, which include The Middle Ages, Renaissance, Baroque, Classical, Romantic, and the Twentieth Century, we will listen to how musicians were inspired by nature. One form that was used throughout several centuries of music history was the pastorale. This is a work that depicts rural life and expresses its qualities (Sadie 562).

During the Middle Ages from approximately 450 through 1450 AD, music developed first as an oral tradition with both Christian and Islamic influences. There were two main styles: monophonic, or singular melody; and polyphonic, two or more melodic lines woven together. The very beginnings of musical notation emerged during this time period.

Hildegard of Bingen, a German female composer and mystic who lived from 1098 to 1179, wrote extensively about the nature of creativity. “God gave to humankind the talent to create with all the world” (Creativity 57). This statement suggests that as mankind creates he is an integral part of nature. Hildegard composed *Symphonia armonie*

*celestium revelationum* (*Symphony of the Harmony of the Heavenly Relations*), a collection of seventy-seven lyrical poems set to monophonic music (*Eras Online*).

Her “Song 71” (“About The Blessed Virgin Mary”) gives praises with references to the beauty of nature:

For in you has blossomed the beautiful flower  
Which has given fragrance to all the spices  
Which were dry.  
And they have appeared all in full greenness.

Because of you the heavens gifted the meadow with dew  
And every land has been made abundant,  
Since your womb has brought forth wheat  
And since the birds of heaven have made their nests in you (Neuls-Bates 16)

The Renaissance (1450-1600) brought a rebirth and a return to classical learning. With that came a change in view of the cosmos and the earth including an increased interest in a humanist philosophy. One stylistic feature of the music during this period was the use of imitation and word-painting. At the height of the Renaissance, the madrigal form was used by composers of this era to express various secular subjects. For example, Claude le Jeune, a prolific French composer of the late 16<sup>th</sup> century, set the following text, *D'une Coline*, to music that evokes a sense of longing for nature that cannot be tamed:

As I walk upon a hill  
In the gayest and greenest of seasons,  
When everything smiles in the fields,  
I see a red rose  
Which surpasses every other flower in beauty.  
I see it from afar,  
And I love it dearly;  
I wish to pick it,  
And stretch my hand toward it,  
But, alas, it is in vain (Davison and Apel 251)

Another example of a madrigal depicting rural life was a song by John Farmer, an English composer living from 1591 to 1601. The text for “Faire Phyllis I Saw Sitting All Alone” describes the author’s beloved sitting all alone and then climbing up the hillside (*Eras Online*).

The expansion of musical expression found instrumental and vocal forms equal during the Baroque period in music history, from approximately 1600 to 1750. Emphasis was placed on counterpoint, or polyphony, and ornamentation in music. The use of

instrumentation led to sound pictures and imitation of such subjects as barking dogs, buzzing flies, and violent spring storms. Two of the musical compositions we will study are *Water Music* by George Frederic Handel, and *The Four Seasons* by Antonio Vivaldi. *The Four Seasons* is a good example of what is termed “program music,” or music that attempts to paint a picture or tell a story.

Composers wrote music that conformed to a more balanced, proportional, and simplified style in the Classical Era (1750-1825). During this period in history, art followed “natural ideals” that were expressed with a balance of texture, melody, question and answer phrases, and “rational” form. This was the Age of Enlightenment. The concept of nature in the arts was emphasized and the social role of music predominated. Two examples we will study are Franz Josef Haydn’s *The Creation* and Wolfgang Amadeus Mozart’s *Eine Kleine Nachtmusik*.

The Romantic Era (1825-1900) yielded a proliferation of compositions about nature. An intense feeling of nationalism developed during this period also, and composers wrote many pieces about their own homelands. A few selections about nature include Beethoven: *Pastorale Symphony*, Delius: *The Walk to Paradise Garden*, Sibelius: *Spring Song*, Smetana: *The Moldau*, Tchaikovsky: *The Lark Song*, Grieg: *Little Bird*, Rimsky-Korsakov: *Flight of the Bumblebee*, Saint-Saens: *Carnival of the Animals*, MacDowell: *Woodland Sketches*, Butterworth: *A Shropshire Lad*, and D’Indy: *Poeme des Rivages*.

Composers of the Twentieth Century, or Modern Era (1900 to the present), have expanded our musical vocabulary by experimenting with a wealth of musical styles, forms, textures, timbres, rhythms, melodies, and harmonic structures. A musical revolution of sorts has given composers opportunities to write about a variety of natural subjects. Technology and globalization bring about a culture where anything is possible. Some musical works from this time include Britten: *Four Sea Interludes*, Vaughn-Williams: *Riders to the Sea*, *The Lark Ascending*, and *The Wasps Overture*, Varese: *Amerique*, Cage: *Short Ride In a Fast Machine*, Debussy: *La Mer*, Holst: *The Planets*, Liadov: *Dance of the Mosquito*, Hohvaness: *And God Created Great Whales*, Gershwin: *An American in Paris*, and Grofe: *Grand Canyon Suite*.

## **THE SCIENTIFIC PROCESS: CREATING NEW MUSIC**

After learning about what musicians have done, students will be given the opportunity to create their own musical expressions. Working with “natural” sounds of the environment as well as “manufactured” sounds invented by use of technology, students will be instructed on songwriting and musical composition. Using critical thinking, students will explore ways that the logical, step-by-step process of creating a song can be compared with the scientific method of procedure. Although this comparison may seem to be slightly esoteric for music educators, it is my experience that a concrete structure for writing music helps students understand that the process may be approached logically just as any scientist might approach an experiment.



As the scientific method or procedure is compared to the process of composing a song or other musical work, the first step is to state the science question by deciding what the problem is, or what you want to know. In music, a theme is invented. These ideas will generate exploration of further details. The next step in science is to collect information and do research related to the question. By comparison, during the composing process, the materials such as the sound devices (instruments or voices) are selected that will best represent the musical ideas of the composer. In the third step in the scientific process, a hypothesis is formed, and an educated guess is made about the answer to the question. During the process of composition, the third step would be to focus on what will happen in the music.

After the hypothesis has been stated, the next step in science is to design and perform an experiment to find out if the hypothesis is correct. In music, the form of the piece will be designed, and the basic elements of music will be decided, such as melody, rhythm, harmony, key signature, and meter. The theme will be developed into various configurations or patterns.

After observing the results of the experiment in the scientific process, the fifth step is to record and study the scientific data, writing about observations. Graphs and charts may be used to show results. By comparison, when composing, the actual writing of the notational symbols will be accomplished, representing the musical ideas already formulated in the mind of the composer. During this process, the components may be worked with to allow for the greatest expression of the musical theme.

Finally, during the scientific process, a conclusion must be drawn to answer the original question posed. This answer will prove or disprove the hypothesis. Similarly, in writing a musical composition, the final draft should reflect all of the intended musical ideas crafted by the composer. Once the students understand the processes of both scientific method and musical composition, they will apply their critical thinking in the study of both disciplines.

## **A CULMINATION OF NATURE AND MUSIC ACTIVITIES**

As part of a collaborative effort with colleagues at my school, a culminating activity will be to write an *operetta* about urban nature and perform it for our school community. The theme of the *operetta* will be centered on urban development and what has happened to the animal and bird characters as a result of it. Supporting roles would include insects, plants, and the machines of modern technology. The class will work together to write a script depicting the theme. This will require students to research what plants and wildlife are in the vicinity as well as encourage them to understand that certain species are no longer able to survive or have adapted to life in the environment created by humans.

Using original and documented bird songs, animal sounds, and rhythms of machines, students will compose the music of the operetta. They will take ideas from the script that will express feelings about their own nature experiences, choose a favorite creature or natural element and write an instrumental or vocal piece about it, and write lyrics that forward the plot of the script or enhance its emotional content. Students will be divided into small groups. One group will create an *aria*, another group will develop *recitative*, and a third group will write an *overture*, or beginning piece of music.

When students write the musical score, there will be opportunities for the voices of animals, birds, and insects to be heard through operatic dialogue. Students will learn the difference between an *aria* and a *recitative*. An *aria* is a melodic song that expresses the emotions or feelings of a character. The *recitative* is a more straightforward rhythmical chant of the *libretto* or lyrics that serves to exploit development of the plot through dialog. In order to use the sounds of nature in the operetta, the various animal characters will be personified by using these two forms of operatic singing. A birdsong could be equated with the *aria*, for example; the purpose will be to express feelings of joy or love. The bird call, repeated as a pattern, or musical *ostinato*, fashioned into a *recitative*, might be used to claim territory, to advance the plot, warn about danger, or tell about an action done by another character.

By using various recordings or sound sources to create the music of the *operetta*, students will begin to understand the process of musical composition. In addition to writing the script and composing the music for the *operetta*, students will create costumes and scenery. A full production will be rehearsed, performed, and recorded for the school community. With permission from the parents, we will publish our *operetta* using desktop publishing and music writing software. Then we will submit the final product for copyright with the Library of Congress.

Within the urban setting, other activities will include field trips to the Houston Natural Science Museum, the Houston Zoo, Hermann Park, and other outdoor venues like a nearby bayou in Houston. Before visiting a site, students will research what sounds they may hear. This will require the students to understand the habitat and the creatures that live there and to know what to expect. Listing several species of wildlife that may be found at the bayou site, they will compare what they might expect to find and what they actually observe. All observations in the field will be documented in a personal nature journal. This nature journal will include drawings, photos, essays, poems, and sounds. Weekly excursions into local habitats, particularly on our school campus, will provide further opportunities to record observations in a student journal. Any family trips the students might take with their parents will also be recorded. These nature journals kept by the students with their responses to environmental experiences will be invaluable tools for discussion.

As part of a project to increase awareness and develop a sense of environmental conscience, I will photograph and record many subjects in the city that will inspire poetry

and essay writing. Using a digital still camera and video camera, I will keep my own journal and collection of writings and pair my photographs with topics that I develop. With computer technology I will share my work by creating a PowerPoint presentation and personal web pages. With the help of a technology expert, students will create their own photo essays to be exhibited in a computerized presentation such as PowerPoint.

## **LESSON PLANS**

### **Sound Answers: Awareness of Music in Nature**

#### ***Materials Needed:***

- Compact disc recording or web site sound sampling of barn owl, northern mockingbird
- Any natural environmental space where birds and other creatures may gather
- Musical instrument such as a piano keyboard or soprano recorder, if available
- Music staff tablet and pencil

#### ***Student Objectives:***

When learning about nature and music, the first lesson will focus on creating an awareness of sounds found in our everyday urban environment. During class discussions, students will consider the purpose of sounds found in nature. Using science and music Project CLEAR guidelines, the student will observe and describe habitats of organisms within an ecosystem, and create a song reflective of something within the students' experience.

#### ***Activity One***

To start, students will hear a compact disc recording or web site sampling of a barn owl and a northern mockingbird. A brief explanation of habitat and characteristics will introduce each one. After hearing the same recording several times, students will be able to differentiate between each one and document the patterned pitches as being high and low, fast or slow, soft or loud, and short or long. The rhythm of each call will be notated on the music staff in the tablet and labeled.

After students have notated the pitches of the familiar birdsongs and repeated them with their own voices, we will take an urban nature hike on our campus to either the courtyard or another outside environment. Gathering in a circle, students will spend three to five minutes just listening to the sounds around them. After the time has passed, each student will sing or whistle a solo imitation of a sound that was heard. After all students have shared their sounds, we will perform them in ensemble. Using a portable audiocassette tape recorder, our "birdsong symphony" will be documented.

Back in the classroom, students will use a piano keyboard, their own voice, or a soprano recorder to compose their own unique bird song and invent a bird character name to go with it. We will also use the soprano recorder to play the imitation of the two-note

pattern (sol-mi) for the sound of a cuckoo. As students advance with their technique, other patterns will be learned to imitate other species.

To learn about form of music, students will then create two short bird song patterns. Using both birdsong patterns, each student will arrange them in a *question-answer* phrase form. The question part of the phrase will end with pitches going upward. The answer part of the phrase will end with pitches moving downward or staying the same. The entire phrase will be written in the music tablet and performed for the class. This group of compositions will be used as a basis for operatic dialog in a later lesson.

### ***Activity Two***

In this activity, students will be asked to decide their personal answer to the question “Is music essential for our survival?” Using previous experiences, documented resources, and personal interviews with parents, each student will write a one- to two-page essay supporting his answer choice. When the essays have been completed, the class will be divided into two teams and the question will be debated. In this way, questions like “what is music?” and “what do we need to survive?” will surface, providing an opportunity for critical thinking. Throughout the debate, the roles of both music and the environment in our lives will be considered.

### ***Evaluation***

After completing the activities in this lesson, students will write a journal entry which summarizes what they have learned about sounds of nature, describing in particular the sounds and characteristics of the northern mockingbird and the barn owl. Each student will demonstrate what he has learned about composing *question-answer* phrases. All work entered into the music writing tablet will be checked for accuracy. Discussions, class performances, and the audiocassette recording will be considered as ways to evaluate the students’ experiences.

## **Our Musical Response to Nature and the Urban Environment**

### ***Materials Needed:***

- Recorded compositions from each time period in music history (Medieval, Renaissance, Baroque, Classical, Romantic, and Modern)
- Recorded examples of technology, machines, and traffic
- Musical compositions written in response to an urban environment

### ***Student Objectives:***

Activities will focus specifically on listening to the works of various composers from each time period in music history as they responded to natural and urban environments. Based on Project CLEAR guidelines, the student will increase his knowledge of musical works and their composers, describe musical works of the past and present, and relate music to history, society, and culture by listening to a variety of classical compositions.

We will describe and analyze musical works using musical terminology by identifying tempo, dynamics, form, melody, rhythm, and expressive qualities.

### ***Activity One***

Students will listen to the following recorded excerpts from each of the six major time periods in music history:

1. Medieval Era:  
Hildegard: *Symphonia armonie celestium revelationum*
2. Renaissance Era:  
Le Jeune: *D'une Coline*
3. Baroque Era:  
Vivaldi: *The Four Seasons*
4. Classical Era:  
Mozart: *Eine Kleine Nachtmusik*
5. Romantic Era:  
Smetana: *The Moldau*
6. Modern Era:  
Cage: *Short Ride in a Fast Machine*

For each of the selections listed above, students will write a brief description in their music tablet of what they hear as it is related to nature. Using descriptive vocabulary, students will identify musical elements of each piece. For example, when writing about *Short Ride in a Fast Machine*, the student may write that the tempo is *prestissimo* (extremely fast) and that the dynamics are *forte* (loud). Unique qualities such as sound effects may be identified, as well as melody, rhythm, form, and expressive qualities.

### ***Activity Two***

Based on the listening activity outlined above, students will then begin to discuss how each piece represented characteristics of the composer or the time period in which he or she lived. We will use a Venn diagram to compare and contrast certain elements that are alike or similar and those that are very different in the musical expressions of the composers. For example, when we compare Smetana (*The Moldau*) with Cage (*Short Ride in a Fast Machine*), the serene romantic era contrasts sharply with the hectic pace of modern urban life. The pieces are alike because they are both written for a large symphony orchestra.

### ***Evaluation***

By the completion of the activities in this lesson, students will have a collection of short descriptions of several musical works by major composers. The student will listen to and identify each excerpt studied. The musical vocabulary words that are used to describe elements of the music will be compiled in a glossary of terms to be used in conjunction with other lessons. As students increase their knowledge of techniques used by each composer, they will recognize the same techniques in other works of music. When the

students compose their own music in the next lesson, they will be able to use some of the techniques in their own writing.

## **The Nature of Music: An Original Operetta**

### ***Materials Needed:***

- Music tablets, pencil, and paper
- Sibelius computer software, or other similar music writing software
- Supplies for making costumes, scenery, and props
- Musical instruments as available
- *Found* objects that will make sounds
- Audiocassette and videocassette tape recorders

### ***Student Objectives:***

As outlined in Project CLEAR, the student will identify simple relationships between music and other subjects (environmental science), create music that is reflective of something within the students' experience, build/invent instruments from ordinary objects and perform original works on these instruments, and listen to and identify musical forms (*operetta*).

In this lesson, students will compose music for an operetta about urban nature. After writing a script that reflects the effects of urban development on natural habitats, students will take ideas from the script and write either an *aria* (song) or a *recitative* (sung dialog) for a favorite creature or natural element. The lyrics, or *libretto*, will enhance the emotional content and forward the plot of the script. Students will understand the form of an *operetta*, a shorter version of an opera story that is completely expressed through vocal music accompanied by musical instruments.

### ***Activity One***

In order to develop characters for the *operetta*, students will each select one animal, bird, or insect from our local habitat to study. Then, using the Internet and library resources, each student will write a one or two page character sketch, explaining specific details about the characteristics and unique traits of his selected species. Illustrations may accompany the report. Some of the traits important to include are the physical appearance (i.e. coloring, size, weight, and distinguishing marks), communicative sound, preferred food, type of shelter, and the ability or inability to adapt to an urban environment. Examples of characters in the *operetta* will include a human being, a squirrel, various types of birds, an opossum, and insects.

In addition, in order to create a setting that will reflect the energy and value of nature, students will describe characters that personify non-living elements of their natural habitat. For example, the fall of rain or the sound of the wind will be described and treated as living, being entities. These elements will take on personalities of their own as students use musical instruments and sound sources from the "sound effects machine" to

represent them. In class discussions, the significance of natural elements will be emphasized as they interact with the other characters of the *operetta*. The wind may complain of heavy pollution, the water will groan from the addition of chemicals into its life streams, and the vibrations of the universe will be overpowered with noise pollution.

After students have developed individual characters for the *operetta*, students will form small groups to write the dialog for short scenes about the effects of urban development on their habitat. The short scenes will be combined in a sequence to provide a snapshot of the urban environment we live in. A plot will develop as students work with their scenes, telling a story and depicting a final outcome for the characters they have created.

### ***Activity Two***

During this lesson, students will continue to work in small groups as they use the birdsongs and sound excerpts created in *Lesson One* to compose longer musical pieces. These musical pieces will be crafted to fit the script written in the preceding activity. The techniques, forms, and styles of the composers and their works studied in the *Lesson Two* will provide examples for students to imitate. The scientific process, as it relates to musical composition, will be used as a blueprint for development of the theme.

### ***Evaluation***

When the instrumental and vocal music has been composed and scored with the music writing software, printouts will be made and collated with the scripts, ready to publish and send in for copyright with the United States Library of Congress. In collaboration with others, a production of the *operetta* will be performed with costumes, scenery, lighting, and props. A videocassette recording will be made for the library archives. Further evaluation will include a team of student reporters who will review the *operetta* and publish their critiques in a school brochure or newsletter.

## **SUMMARY**

This integrated unit on urban nature, creative writing, and musical expression will provide educators and students with the opportunity to intensify their awareness about our city environments and help prepare the next generation in preserving our common bounty. Students will understand how our natural environment is in danger of being further diminished as they learn about the adaptations of living things, including us. The natural sounds around us, which many of us take for granted, are now being overpowered by the sounds of machines and technology, so often contributing to damaging noise pollution. As the theme of ecology emerges, students will understand how music can be used as a motivational vehicle to express their feelings and creative impulses about the habitat in which they live. The experience of writing their own *operetta* will provide them with a means to tell an important story. Using methods, techniques, and practices artists have used throughout numerous generations, students will be able to express their innate love for nature and for music, both integral parts of their lives.

## ANNOTATED BIBLIOGRAPHY

Anderson, Lorraine and Thomas S. Edwards, Eds. *At Home on This Earth: Two Centuries of United States Women's Nature Writing*. Hanover, NH: University Press of New England, 2002.

This source provides an historical perspective on women's nature writing in the United States. The viewpoint of women on this topic will be an invaluable addition to compare with the general trends of the policy-makers, for example.

Bennett, Michael and David W. Teague, Eds. *The Nature of Cities: Ecocriticism and Urban Environments*. Tucson: University of Arizona Press, 1999.

This source provides substantial information about our current urban environments, including examples of extinction and adaptation of wild things.

Bruce, Geoffrey and Ian Burton. *Listen! Music and Nature*. Cambridge; New York: Cambridge University Press, 1976.

This is a middle school textbook linking music with the world of nature. It stresses a practical approach with songs to sing as well as musical activities.

Cage, John. *An Anthology*. Richard Kostelanetz, ed. New York: Da Capo Press, 1991.

This collection of writings provides insight into the philosophy of composer John Cage. It includes a complete discography of his works. Cage uses materials and resources of the modern environment to express himself through his music.

Clark, Suzannah and Alexander Rehding. *Music Theory and Natural Order from the Renaissance to the Early Twentieth Century*. Cambridge, United Kingdom; New York: Cambridge University Press, 2001.

This volume of essays contains such subjects as philosophy and aesthetics, the natural philosophy of seventeenth century England, the gift of nature, and music entitled "'Tis Nature's Voice."

*CLEAR ONLINE*. Houston Independent School District Web Portal. 9 January 2003.

Grade Two TEKS Science Objectives. TEKS Music Objectives.

<<http://www.hisdconnect.org>>.

The use of the CLEAR ONLINE data bank provides relevant objectives for teaching. For example, SCI.2.7.A (4.) states: "The student will analyze changes in sound and environment."

Covey, Sean. *The Seven Habits of Highly Effective Teens*. New York: Fireside, 1998.

This source provides information about the components of language. According to the author, language is seven percent words, 53 percent body language, and 40 percent tone quality. This may be related to the study of sounds in nature (page 171).



Davison, Archibald T. and Willi Apel, eds. *Historical Anthology of Music: Oriental, Medieval, and Renaissance Music. Volume I.* Cambridge: Harvard University Press, 1982. Fifteenth printing.

This is a collection of original musical manuscripts that provides information about the styles and techniques of composers during the Renaissance. The translated texts are helpful in determining how composers responded to natural subjects.

Dixon, Terrell F., ed. *City Wilds: Essays and Stories About Urban Nature.* Athens: University of Georgia Press, 2002.

This text is recommended by its editor for the study of urban environmental issues and topics. Essays and stories explore such topics as how humans look to nature for restorative powers and urban nature in childhood and adulthood. There are also examples of literary realism and satire.

Dwyer, Jim. *Earth Work: Recommended Fiction and Non-Fiction about Nature and the Environment for Adults and Young Adults.* New York: Neal-Schuman Publishers, Inc., 1996.

This resource provides more examples of literary pieces related to the environment which will be easily accessible to young people.

Elliot, Lang. *Music of the Bird: A Celebration of Bird Song* (includes bird song compact disc). Boston; New York: Houghton Mifflin Company, 1999.

Filled with fine quality photographs, this volume provides specific examples of species of birds found in North America. Throughout the book are quotations from nature writers such as Henry David Thoreau and Robert Browning, among many others. The compact disc provides an audio sampling of over seventy birdsongs.

“Sound.” 2003. Microsoft Corporation. 25 February 2003. <[www.encyclopedia.com/encnet/refpages/RefArticle.aspx?refid=761560639](http://www.encyclopedia.com/encnet/refpages/RefArticle.aspx?refid=761560639)>

This online encyclopedia provides detailed information about the definition of sound. It breaks it down into three important physical traits: pitch, intensity, and timbre.

*Eras Online.* 2001. Sony Music Entertainment. 15 March 2003. <[www.essentialsofmusic.com/eras](http://www.essentialsofmusic.com/eras)>.

This web site provides information about music history in a concise summary. Links lead to musical sampling sound bytes representing composers of each era history.

Esbensen, Barbara Juster. Megan Lloyd, illustrator. *Dance With Me.* New York: Harper Collins Publishers, 1995 (First Edition).

This book is a collection of poems depicting what the author describes as the dance of nature. This approach will be particularly useful in relating music, dance, and fine arts to the natural world. The poems could serve as examples for students.

Esbensen, Barbara Juster. *Echoes for the Eye: Poems to Celebrate Patterns in Nature*. New York: Harper Collins, 1996 (First Edition).

Classified as a juvenile book, this collection of poems about patterns in nature will be used as an example of how music and nature can be related by structure.

Fay, T.W. "Noise and Health." *Environment and Behavior* 29. Evans, G.W. and L. Maxwell, eds. New York: The New York Academy of Medicine, May 1990-Nov 1998.

This article will explore the relationship between human behavior, health, and noise levels in our urban environment. I suspect that the author will take a stand on how we should work towards eliminating noise from our lives.

Foss, Diana M. and Ronald K. Jones. *Creating a School Habitat: A Planning Guide for Habitat Enhancement on [School Grounds in Texas]*. Houston: Texas Parks and Wildlife, Urban Program: U.S. Fish and Wildlife Service, Ecological Service Field Office, 1999.

This book will lay the basic groundwork for the habitat my colleague and I plan to build on our campus. I hope that it will guide us in making the best use of the small parcel of land that we will have available.

Fox, Matthew. *Creativity: Where the Divine and the Human Meet*. New York: Putnam, 2002.

Quotations by Hildegard of Bingen, a female composer and philosopher of the Middle Ages, provide support for the contention that the power of creativity in the arts is directly related to the universe and all that belongs in it.

Friedman, Sarah L. and Theodore D. Wachs. *Measuring Environment Across the Life Span: Emerging Methods and Concepts*. Washington, D.C.: American Psychological Association, 1999.

This collection of essays contains a section on measuring the physical environment as a stressor. This will be pertinent when discussing the effects of pollution on children.

Garcia, Amando, ed. *Environmental Urban Noise*. Boston: WIT Press, 2001.

Although not specific as to its focus, I am anticipating information which describes the effects of noise pollution on children. I am looking for a working definition of "noise."

- Gardener's Supply. Innovative Gardening Solutions.* 18 February 2003.  
 <<http://www.gardeners.com/gardening/content.asp?copyid=5066>>.  
 New ideas for creating a backyard habitat. Lists supplies and materials needed and techniques for developing a natural habitat in the city.
- Gates, Barbara T., editor. *In Nature's Name: An Anthology of Women's Writing and Illustration, 1780-1930.* Chicago: University of Chicago Press, 2002.  
 I would love to examine the illustrations done by women throughout the given time period and draw inspiration for musical composition.
- Gilman, Lawrence. *Nature in Music and Other Studies in the Tone-Poetry of Today.* Freeport, New York: Books for Libraries Press, 1966.  
 As the title suggests, this book may offer clues as to how the "language of music" relates to tone poetry and natural subjects. One essay examines "Nature in Music."
- Gooding, Mel. *Artists, Land, Nature.* New York: Harry N. Abrahms, 2002.  
 This book contains nature photography, interviews, and a section on "Listening to the Music." It should provide visual inspirations for musical experiences.
- Greene, Brian. *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory.* United Kingdom: Vintage Books, 2000.  
 The Superstring Theory, an explanation for the nature of the universe, could be used to support the argument that music (sound vibration) is at the very core of how the universe creates the energy of life. In this world of quantum physics, particles of energy called "Plank-lengths," wrapped like donuts in groups of three, vibrate just like strings.
- Grolier Online.* HISD Departments. 9 January 2003. <<http://www.gme.grolier.com>>.  
 This web site contains sample projects from *The New Book of Popular Science*. One unit is entitled, "Did You Hear That?" Basic physics of sound is defined. "Sound is a series of pressure changes."
- Inoguchi, Takashi, Edward Newman, and Glen Paoletto. *Cities and the Environment: New Approaches for Ecocities.* Tokyo: United Nations University Press.  
 This e-book discusses studies about natural, built, and socio-economic environments.
- Jourdain, Robert. *Music, the Brain, and Ecstasy: How Music Captures Our Imagination.* First Edition. New York: W. Morrow, 1997.  
 Although this book focuses mainly on the psychological aspects of music, it also discusses some physiological issues that may be relevant in the discussion of how humans express themselves through music.

*Kids Domain/Earth Day*. 2002. Kaboose Inc. 19 March 2003.  
<<http://www.kidsdomain.com/holiday/earthday.html>>.  
Lists songs about the environment and tells where to find them. I will use songs like “Evergreen, Everblue” to teach students about environmental values. The form of the songs may be studied in order to encourage students to compose their own songs related to nature.

Krause, Bernie, et.al. *Wild Soundscapes: Discovering the Voice of the Natural World*. Berkeley: Wilderness Press, 2002.  
This book and accompanying compact disc recording explores the world of natural sound by addressing the following topics: how to listen to the natural world, describing what you hear, and equipment and techniques needed to record soundscapes.

Kryter, Karl D. *The Effects of Noise on Man* (2nd ed.) New York: Academic Press, 1985.  
This is an early edition of the work done by this author. I will compare and contrast any new research being done on the effects of noise pollution.

Kryter, Karl D. *The Handbook of Hearing and the Effects of Noise: Physiology, Psychology, and Public Health*. San Diego: Academic Press, 1994.  
This volume contains a discussion of the effects of noise on humans and specifically addresses the topic of noise-induced deafness.

Leslie, Clare Walker and Charles E. Roth. *Keeping a Nature Journal: Discover a Whole New Way of Seeing the World Around You*. North Adams, MA: Storey Books, 2000.  
An important quotation from E.O. Wilson’s foreword to this volume explains the theory behind biophilia.

Lomax, John and Alan. *Best Loved American Folk Songs*. New York: Grosset and Dunlap, 1947.  
This collection includes a wealth of folk songs from all parts of the United States, many of which describe settings and obstacles that Americans have encountered in their expansion of settlements into the wilds of our natural habitats.

Marinelli, Janet, ed. *Going Native: Biodiversity in Our Own Backyards*. Brooklyn Botanic Garden, 1994.  
This author has written about the home environment as it relates to interior design elements. This book addresses the need for a balanced ecosystem in our own space.

Mascie-Taylor, C.G.N. and G.W. Lasker, eds. *Applications of Biological Anthropology to Human Affairs*. Cambridge: Cambridge University Press, 1991.

- This source addresses pollution and its effect on human growth, particularly as it relates to lead, noise, and toxic wastes.
- McEwen, Christian and Mark Statman, eds. *The Alphabet of the Trees: A Guide to Nature Writing*. New York: Teachers and Writers Collaborative, 2000.  
This guide contains information on specific writing techniques nature writers might use. Ideas for writing exercises will be used in the classroom.
- Mellers, Wilfrid Howard. *Singing in the Wilderness: Music and Ecology in the Twentieth Century*. Urbana: University of Illinois Press, 2001.  
This book is an up-to-date exploration of how music and nature relate. It will be interesting to contrast the modern perspective with older resources.
- Memphis State University. *Effects of Noise on Wildlife and Other Animals*. U.S Environmental Protection Agency, Office of Noise Abatement and Control. Washington, D.C.: U. S. Government Printing Office, 1971.  
The United States government is aware of the possibility of some adverse effects of noise on wildlife and animals. I presume that this study is scientifically controlled and monitored by experts in the field of environmental science.
- Nabhan, Gary Paul and Trimble Stephen. *The Geography of Childhood: Why Children Need Wild Places*. Boston: Beacon Press, 1994.  
This book supports the argument that children must have experiences with the natural world. It contains photographs, which will be helpful in talking about various habitats.
- Audubon*. 2003. National Audubon Society, Inc. 18 Feb. 2003.  
<<http://www.audubon.org>>.  
This web site contains information invaluable to the study of birds. There are news releases about preservation of endangered species and highlights of the Audubon Magazine.
- National Wildlife Federation*. 2003. National Wildlife Federation. 18 Feb. 2003.  
<<http://www.nwf.org>>.  
Many resource and educational guides can be found by accessing this web site. News about current political action is highlighted.
- Neuls-Bates, Carol, ed. *Women in Music: An Anthology of Source Readings from the Middle Ages to the Present*. New York: Harper & Row, Publishers, 1982.  
This volume provides details about the life and work of Hildegard of Bingen and other women composers who have contributed throughout history.
- Nollman, Jim. "How Nature Makes Music." 2003. [greenmuseum.org](http://greenmuseum.org). 1 March 2003.

This author writes a personal essay about how nature itself provides musical tones and patterns. He maintains that we must all become better listeners if we are to recognize these natural sounds. He gives examples of several specific natural sites and describes their inherent beauty.

*North American Butterfly Association*. 18 Feb. 2003. <<http://www.naba.org>>.

This web site provides information and other resources about species of butterflies found in North America, including those found in Texas. Images of a variety of species as well news about sightings of butterflies in North America are available.

O'Connor, Maura. *Living Lightly in the City: An Environmental Education Guidebook: Volume One, Kindergarten-Third Grade*. Tustin, CA: Acorn Naturalists, 1993.

This resource will provide opportunities for students to explore lifestyles in the urban setting that will accommodate wildlife.

Olmstead, Nancy. "Dial B for Birdcall." *Audubon* (Dec. 2002). June 2003. <<http://magazine.audubon.org/fieldnotes/fieldnotes0212.html>>.

Redman, Charles L. *Human Impact on Ancient Environments*. Tucson: Univ. of Arizona Press, 1999.

What did ancient tribes and peoples do in the course of history in response to their native environments? I am hoping to find answers to this question in this survey of ancient lands. Told from an archeological viewpoint, this narrative discusses the impact of urban growth.

Reimer, Bennett. *On the Nature of Music*. Netlibrary ebook. University of Houston Electronic Resources. 1 March 2003.

This source discusses the very nature of music as it relates to the human experience. He quotes extensively from the composer/educator Leonard Bernstein in his book, "The Joy of Music." Bernstein worked many years trying to define the musical experience. I will use both sources in defining and expanding my topic.

Roberts, Janet Wier and Carole Huelbig. *City Kids and City Critters!: Activities for Urban Explorers*. New York: McGraw-Hill Publishers, 1996.

Written by two Houston naturalists, this kid-friendly urban nature guide provides information and activities appropriate for learning about Houston wildlife and natural environments. There is a section on natural sounds, habitats, backyards and schoolyards, nurturing nature, and creating compost piles.

Rothenberg, David and Marta Ulvaeus, editors. *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts*. Middletown, CT: Wesleyan University Press, 2001.

- This anthology provides essays written about music and nature, descriptions of experiences of composers and naturalists who work with soundscapes to create, and a compact disc recording of various examples by individuals involved in the process of documenting music in nature.
- Sadie, Stanley, ed. *The Norton/Grove Concise Encyclopedia of Music*. New York: W. W. Norton and Company, 1988.  
This volume provides short, informative entries about composers and their works. I found pertinent information about Claude Le Jeune, who wrote madrigals in the late 16<sup>th</sup> century.
- Sherwonit, Bill, ed. *Denali: A Literary Anthology*. Seattle: Mountaineers Books, 2000.  
This book should be useful in examining examples of nature writing from other parts of the United States.
- Slovic, Scott, ed. *Getting Over the Color Green: Contemporary Environmental Literature of the Southwest*. Tucson: University of Arizona Press, 2001.  
As the title suggests, environmental beauty can be found anywhere! This concept may be related to urban nature as well.
- Staub, Frank J. *America's Forests*. Minneapolis: Carolrhoda Books, 1999.  
This e-book examines growth and the changing nature of forests, plants, and animals living there. It shows how these lands are used in a photo essay.
- Stein, Sara. *Planting Noah's Garden: Further Adventures in Backyard Ecology*. Houghton-Mifflin, 1997.  
This book presents illustrations and directions for creating a backyard environment.
- Storr, Anthony. *Music and the Mind*. New York: Ballantine Books, 1992.  
The author discusses the effects of urban environments on creativity and human production. He also reviews philosophical thought as to the expression of the human condition. One chapter is entitled "The Innermost Nature of the World." This book will be useful in helping to articulate the relationship between nature and musical expression.
- Tufts, Craig and Peter Loewer. *The National Wildlife Federation's Guide to Gardening for Wildlife*. Rodale, 1995.  
This is another book about creating wildlife environments with the space that is available in suburban or urban places.
- U.S. Department of the Interior. *Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: Bibliographic Abstracts*. Engineering and Services Center:

U.S. Air Force, Fish and Wildlife Service, 1988. 13 March 2003.

<<http://www.nonoise.org/library/animbib/animbib.htm>>.

This source provides numerous examples of the effects of noise on wildlife. One study about male canaries demonstrates that by stopping the noise that creates stress in this species, they are able to return to normalcy with their bird song.

U.S. Environmental Laws. *Hazardous Materials Training and Research Institute*. 9 January 2003. <<http://www.hmtre.org/uslaws.html>>.

This web site provides information about what hazards pose a threat to our environment. Scientific research should provide facts about what needs to be done to preserve our planet.

Wachs, Theodore D. and Gerald E. Gruen. *Early Experience and Human Development*. New York: Plenum Press, 1982.

This study would explore the types of environments that would be conducive to productive lives and normal development.

Wachs, Theodore D. *The Nature of Nurture*. Newbury Park: Sage Publications, 1992.

This book may or may not contain pertinent information about the early environments of childhood. It may mention the effects of noise.

Whitman, Ann H., ed. *Familiar Birds of North America: Eastern Region*. The Audubon Society Pocket Guides. New York: Alfred A. Knopf, 1986.

This handy guide provides a full color photograph of each species and information about what makes it unique, identification, voice, habitat, and range. Of particular interest are the northern mockingbird and the great horned owl.

Wilson, Edward O. *Biophilia*. Cambridge, MA: Harvard University Press, 1984.

The author's theory about the relationship of humans to nature explains why we have a vital interest in protecting the natural world. According to Wilson, we have an innate love of nature because we evolved as a part of it.

Wilson, Edward O. *National Forum on Biodiversity* (e-book). Washington, D.C.: National Academy Press, 1988.

This resource is a record of discussions about biodiversity in the United States as experts came together in a national forum.

### **Videocassette Recordings**

*Music Is Everywhere*. Educational Frontiers.

This tape addresses how people create music in response to their environment. The sections include: "Hearing Music Everywhere," "Music's Many Meanings," and "Music Throughout the World."



*The Nature of Music*. Directed by Jeremy Marre. Kultur Films Inc., 1988. (135 minutes)  
Section two of this videocassette recording focuses on how other animals make music and how those sounds have influenced human music. The videocassette tape shows “singing monkeys.” Some content of this videocassette recording may not be suitable for children.

### **Selected Discography**

*Nature and Make Believe [sound recording]*. Bowmar Orchestral Library Series One. Miami, FL: CPP/Belwin, 1994.  
This recording contains such musical examples as “The Flight of the Bumblebee,” “Dance of the Mosquito,” “Little Bird,” and “The Lark Song.” This should provide simple compositions easily understood by all age levels.

Ashley White, David. “The Blue Estuaries” from *The Blue Estuaries*. [sound recording]: American Choral Music. Houston Chamber Choir. Fort Worth, TX: Zephyr Productions, 2001.  
This locally composed and recorded music will provide a German example of how composers treat the subject of nature in their work in response to the local environment.

Hildegard of Bingen. *Canticles of Ecstasy: Symphonia Armonie Celestium Revelationum*. Selections [sound recording]. New York: Deutsche Harmonia Mundi, 1994.  
In this recording, the style of Hildegard is represented with *Symphoniae to Maria. Allelulia! O Virgo Mediatrix*. Students will be able to hear music about nature and the love of all creation from the Middle Ages.

La Jeune, Claude. *La Printans: Now Return Once More the Springtime [sound recording]*. New York: Sony Classical, 1996.  
Claude La Jeune’s style and subject matter is well represented in this collection of vocal pieces about Springtime. Students will be able to hear a variety of pieces similar to *D’une Coline*.

Mozart, Wolfgang Amadeus. *Eine Kleine Nachtmusik, K. 525 [sound recording]*. From *Great Performances*. New York: CBS Records, 1962.  
This selection is one of many available recordings of Mozart’s famous *A Little Night Music*. The music creates a mood of elation and excitement about nighttime activities.

Smetana, Bedrich. *The Moldau*, et al. Conducted by Rafael Kubelik. Polygram Records, 1990.  
The Romantic Era brought numerous examples of nature in music. This piece also represents a trend in nationalism, as the composer writes about the beauty of his homeland.

Vivaldi, Antonio. *The Four Seasons, Concerto Grosso, Op. 3, No. 11 [sound recording]*.

Germany: Arte Nova Classics; distributed by BMG, 1995.

Vivaldi uses the orchestra masterfully to create the moods, colors, sounds, and rhythms of each season of the year. Students will be able to understand how various instruments may be used to represent musical ideas.

Yanni. *Yanni Naturally*. Nature Quest Compact Disc Label, 1998.

Songs about nature and environmental issues. Easily accessible and popular music for children and adults.