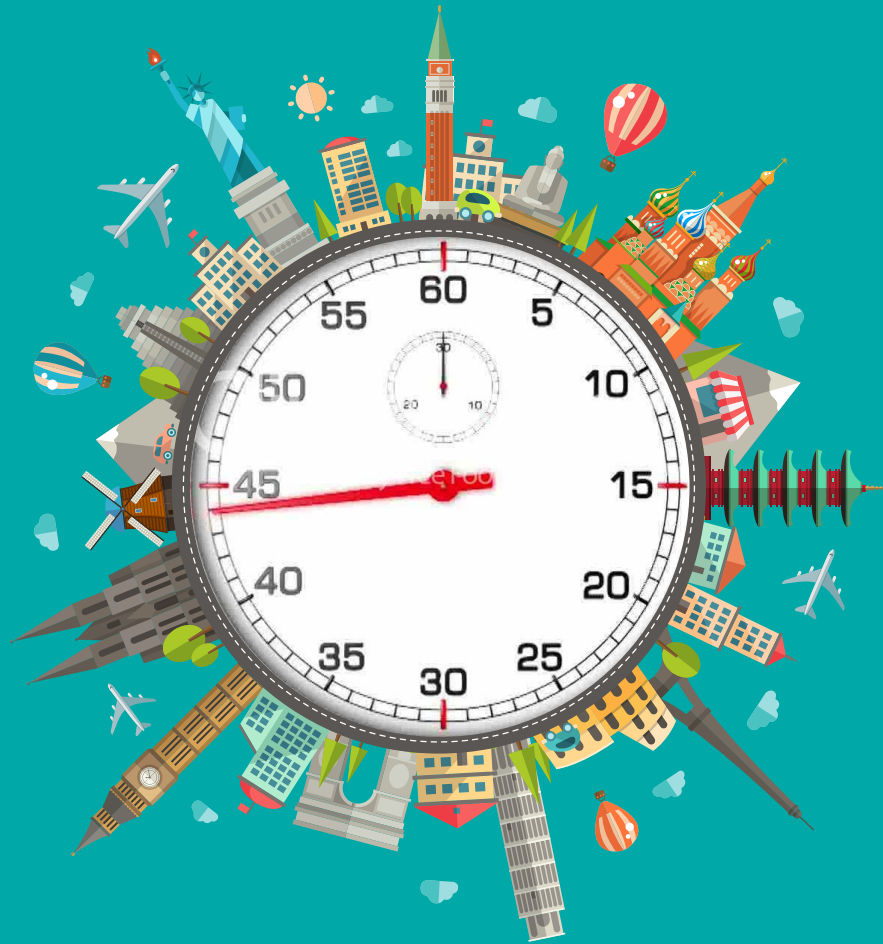


DETROIT SYMPHONY ORCHESTRA 2017-2018 EDUCATION CONCERT SERIES
TEACHER RESOURCE GUIDE



AROUND THE WORLD IN 45 MINUTES

March 7, 2018: 10:30 AM & 11:45 AM

March 8, 2018: 10:30 AM

Grab your passports as we travel around the world and discover how folk songs, stories, and traditions of other cultures have inspired some of the greatest composers and works in classical music and how we can share and preserve our own identities.

WELCOME

Welcome to the Educational Concert Series! The lessons and activities in this resource guide work together with the Educational Concert Series to enable your students to put their ears to good use in the concert hall. They will learn to observe, to describe, and to compare and contrast. Learning historical and geographical context, they will discover how different cultures can supplement each other. They will enter the wonderful world of orchestral music and sound, leaving empowered to make their own sense of what they hear.

This booklet is divided into two units, each including Activities and Extensions. Every teacher can adjust the lesson plans according to their students' background, abilities, and current classroom curriculum.

We expect a challenging experience at the concert. To make the most of your visit to the Detroit Symphony Orchestra, play the music for your students throughout the school day and complete as many of the lessons in this booklet as you can. We hope you enjoy the lessons, indulge in listening, and most of all, we sincerely hope you have fun at your Educational Concert Series. See you soon!

Debora Kang
Education Manager





A COMMUNITY-SUPPORTED ORCHESTRA

Leonard Slatkin, Music Director
Jeff Tyzik, Principal Pops Conductor
Neeme Järvi, Music Director Emeritus

EDUCATIONAL CONCERT SERIES: Around the World in 45 Minutes

Wednesday, March 7, 2018 at 10:30 AM & 11:45 AM
Thursday, March 8, 2018 at 10:30 AM
in Orchestra Hall

Michelle Merrill, *conductor*

Mikhail Glinka (1804 - 1857)	Overture to <i>Ruslan and Ludmilla</i>
arr. Zhou Long	"Driving the mule team" from <i>Chinese Folk Songs</i>
Edvard Grieg (1843 - 1907)	"Anitra's Dance" from <i>Peer Gynt</i> Suite No. 1
Johannes Brahms (1833 - 1897)	Hungarian Dance No. 3 in F major
Bedrich Smetana (1824 - 1884)	"Furiant" and "Polka" from Three Dances from <i>Bartered Bride</i>
Engelbert Humperdinck (1854 - 1921)	Prelude to <i>Hansel and Gretel</i>
Maurice Ravel (1875 - 1937)	Suite of Five Pieces from <i>Ma Mère l'Oye</i> (Mother Goose) II. Tom Thumb
Georges Bizet (1838 - 1875)	"Aragonaise" from Suite No. 1 from <i>Carmen</i>
Gustav Holst (1874 - 1934)	<i>St. Paul's Suite</i> for String Orchestra IV. Finale (The Dargason)
arr. Percy Fletcher trans. Samuel Coleridge-Taylor	<i>Deep River</i>
Aaron Copland (1900 - 1990)	"Hoe Down" from <i>Rodeo</i> for String Orchestra
John Philip Sousa (1854 - 1932)	The Liberty Bell March





DETROIT SYMPHONY ORCHESTRA

LEONARD SLATKIN, Music Director
Music Directorship endowed by the Kresge Foundation

JEFF TYZIK
*Principal Pops
 Conductor*

TERENCE BLANCHARD
*Fred A. and Barbara M. Erb
 Jazz Creative Director Chair*

NEEME JÄRVI
*Music Director
 Emeritus*

MICHELLE MERRILL
*Associate Conductor, Phillip and Lauren
 Fisher Community Ambassador*

FIRST VIOLIN

Yoonsin Song
 CONCERTMASTER
Katherine Tuck Chair
 Kimberly Kaloyanides
 Kennedy
 ASSOCIATE CONCERTMASTER
*Alan and Marianne
 Schwartz and Jean
 Shapero (Shapero
 Foundation) Chair*
 Hai-Xin Wu
 ASSISTANT CONCERTMASTER
*Walker L. Cisler/Detroit
 Edison Foundation Chair*
 Jennifer Wey
 ASSISTANT CONCERTMASTER
 Marguerite Deslippe
 Laurie Landers Goldman*
 Rachel Harding Klaus*
 Eun Park Lee*
 Adrienne Rönmark*
 Laura Soto*
 Greg Staples*
 Jiamin Wang*
 Mingzhao Zhou*

SECOND VIOLIN

Sujin Lim
 ACTING PRINCIPAL
The Devereaux Family Chair
 Adam Stepniewski
 ASSISTANT PRINCIPAL
 Ron Fischer*
 Will Haapaniemi*
*David and Valerie
 McCammon Chair*
 Hae Jeong Heidi Han*
*David and Valerie
 McCammon Chair*
 Sheryl Hwangbo*
 Hong-Yi Mo*
 Alexandros Sakarellos*
 Joseph Striplin*
 Marian Tanau*
 Jing Zhang*

VIOLA

Eric Nowlin
 PRINCIPAL
Julie and Ed Levy, Jr. Chair
 James VanValkenburg
 ASSISTANT PRINCIPAL
 Caroline Coade
 Hang Su
 Glenn Mellow
 Shanda Lowery-Sachs
 Hart Hollman
 Han Zheng

CELLO

Wei Yu
 PRINCIPAL
James C. Gordon Chair
 Robert Bergman*
 Jeremy Crosmer*
 David LeDoux*
 Peter McCaffrey*
*Joanne Danto and
 Arnold Weingarden Chair*
 Haden McKay*
 Úna O'Riordan*
 Paul Wingert*
*Victor and Gale Girolami
 Chair*
 Open
 ASSISTANT PRINCIPAL
*Dorothy and Herbert
 Graebner Chair*

BASS

Kevin Brown
 PRINCIPAL
Van Dusen Family Chair
 Stephen Molina
 ASSISTANT PRINCIPAL
 Linton Bodwin
 Stephen Edwards
 Christopher Hamlen

HARP

Patricia Masri-Fletcher
 PRINCIPAL
Winifred E. Polk Chair

FLUTE

Sharon Sparrow
 ACTING PRINCIPAL
*Bernard and Eleanor
 Robertson Chair*
 Amanda Blaikie
*Morton and Brigitte Harris
 Chair*
 Jeffery Zook
 David Buck
 PRINCIPAL
*Women's Association for
 the DSO Chair*

PICCOLO

Jeffery Zook

OBOE

Alexander Kinmonth
 PRINCIPAL
*Jack A. and Aviva
 Robinson Chair*
 Sarah Lewis
Maggie Miller Chair
 Brian Ventura
 ASSISTANT PRINCIPAL
 Monica Fosnaugh

ENGLISH HORN

Monica Fosnaugh
*Shari and Craig Morgan
 Chair*

CLARINET

Andrea Levine†
 ACTING PRINCIPAL
 Jack Walters
*PVS Chemicals Inc./Jim
 and Ann Nicholson Chair*
 Laurence Liberson
 ASSISTANT PRINCIPAL
 Shannon Orme
 Ralph Skiano
 PRINCIPAL
Robert B. Semple Chair

E-FLAT CLARINET

Laurence Liberson

BASS CLARINET

Shannon Orme
*Barbara Frankel and
 Ronald Michalak Chair*

BASSOON

Robert Williams
 PRINCIPAL
 Victoria King
 Michael Ke Ma
 ASSISTANT PRINCIPAL
 Marcus Schoon
 Alexander Davis
*African-American
 Orchestra Fellow*

CONTRABASSOON

Marcus Schoon

HORN

Karl Pituch
 PRINCIPAL
 Johanna Yarbrough
 Scott Strong
 Bryan Kennedy
 David Everson
 ASSISTANT PRINCIPAL
 Mark Abbott ^

TRUMPET

Hunter Eberly
 PRINCIPAL
Lee and Floy Barthel Chair
 Kevin Good
 Stephen Anderson
 ASSISTANT PRINCIPAL
 William Lucas

TROMBONE

Kenneth Thompkins
 PRINCIPAL
 David Binder
 Randall Hawes

BASS TROMBONE

Randall Hawes

TUBA

Dennis Nulty
 PRINCIPAL

PERCUSSION

Joseph Becker
 PRINCIPAL
*Ruth Roby and Alfred R.
 Glancy III Chair*
 Andrés Pichardo-Rosenthal
 ASSISTANT PRINCIPAL
William Cody Knicely Chair
 James Ritchie

TIMPANI

Jeremy Epp
 PRINCIPAL
*Richard and Mona Alonzo
 Chair*
 James Ritchie
 ASSISTANT PRINCIPAL

LIBRARIANS

Robert Stiles
 PRINCIPAL
 Ethan Allen

PERSONNEL MANAGERS

Heather Hart Rochon
 DIRECTOR OF ORCHESTRA
 PERSONNEL
 Patrick Peterson
 MANAGER OF ORCHESTRA
 PERSONNEL

STAGE PERSONNEL

Dennis Rottell
 STAGE MANAGER
 Steven Kemp
 DEPARTMENT HEAD
 Matthew Pons
 DEPARTMENT HEAD
 Michael Sarkissian
 DEPARTMENT HEAD

LEGEND

* These members may voluntarily revolve seating within the section on a regular basis

† substitute musician

~ extended leave

^ on sabbatical



Unit 1

Storytelling Through Music

For thousands of years, stories have been passed down from generation to generation by storytelling, poetry, plays, books, dance, and even through music. Stories help our minds to create fantasies and spark our imagination to the fullest.

Many composers are inspired by stories, fairy tales and great literature. They hear stories by traveling to different places and observing other cultures and traditions. Other composers are more inspired by their home country and their heritage. Whatever their inspiration, composers write beautiful music that helps us interpret and create our own stories.

What stories will you imagine when you listen to the orchestra? What techniques does the orchestra use to fire up our imagination? What can students learn from the history, stories and musical depictions for their own writing and creative expression?



ACTIVITY 1 TRAVELING THE WORLD

The music you will hear played by the Detroit Symphony Orchestra is written by composers near and far. Many of them traveled the world, studying different cultures and learning different languages. They heard many different kinds of music, instruments and folk tales, and they met many people. The one thing that they all have in common is that they were all inspired by their journeys around the world and wrote music to describe their experiences and adventures.

Discussion: *Where are some places you've traveled to? What is a faraway place that you'd like to travel to someday? Why? What interests you about that place? What's so exciting about traveling to new places?*

Where in the World:

As you read through the short biographies of the composers, have the students use the map to locate and identify the countries that are highlighted.

Georges Bizet (1838 – 1875) was born in Paris, **France**. He is known for his dramatic operas. He wrote 30 of them, but only 6 were published. One of his operas, *Carmen*, is the most performed opera in the world. His extensive travels in **Spain** and love of stories and books inspired his compositions.

Johannes Brahms (1833-1897) was born in Hamburg, **Germany**. Brahms is known to be one of the greatest composers in history. He studied piano at a young age and became very accomplished. He occasionally earned money to help his family by playing at inns and the dock area of Hamburg. It was during these times when he met a Jewish-Hungarian violinists and learned of gypsy music.

Mikhail Glinka (1804 – 1857) was born in **Russia**. He is known as the father of Russian classical music and composed the first Russian opera. Glinka traveled to many different places in **Europe** and learned all different types of music. However, he returned to **Russia** and pursued to write Russian music. Many of Glinka's compositions were inspired by Russian history, fairy tales and folk songs.

Edvard Grieg (1843-1907) was born in **Norway**. Grieg studied the piano in Leipzig, **Germany**, but traveled all over the world to places like **Denmark, Sweden, Italy** and **England**. During his travels, Grieg made many composer friends, who inspired him to write music himself. Grieg was always proud of his country and was driven to compose music with a Norwegian sound. Grieg used inspiration from **Norway's** landscape and environment and Norwegian folk music.

Gustav Holst (1874-1934) was born in Cheltenham,

England. He played the piano as soon as he was able to reach the keys and the trombone so that he could play in an orchestra. Holst's inspiration came from his interest in Native American mythologies, folk songs, astrology and even his life and the people he met.

Engelbert Humperdinck (1854-1921) was born in Seigburg, **Germany**. Humperdinck traveled to **Italy, France** and **Spain** to study music, but his main inspiration were children's stories such as "Hansel and Gretel", which is one of his most known works. The idea to write this piece came from his sister who wrote the opera's libretto (the words). It was the first opera to be broadcasted on the radio.

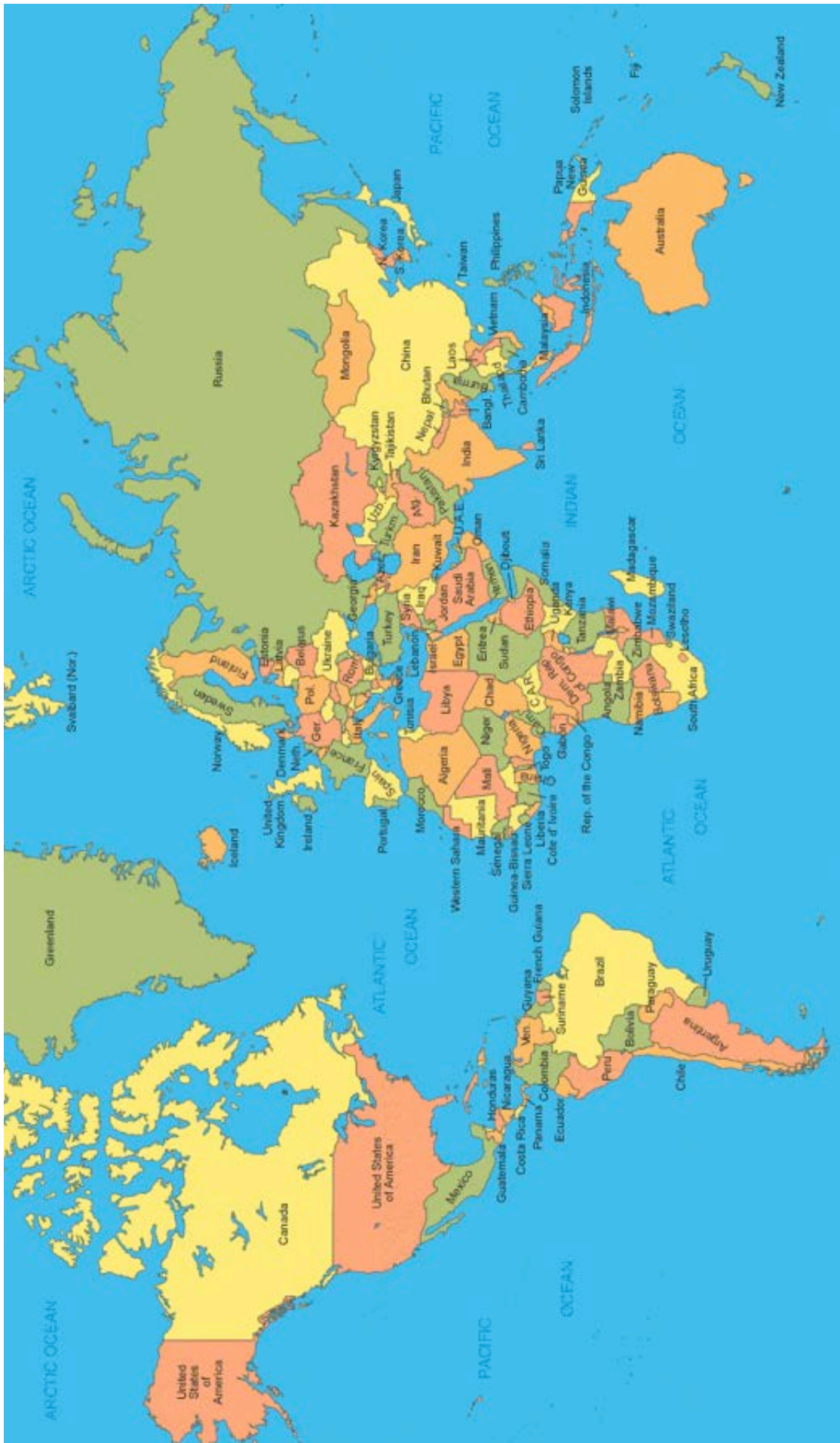
Zhou Long b.1953 was born in Beijing, **China** but now lives in the **United States**. Zhou Long began playing the piano at an early age, but was forced to stop during the Chinese Cultural Revolution. He lived on a farm where he operated a tractor and produced crops. It was the deserted landscapes, fierce winds and fires he experienced during this time that made a deep impression and is shown and portrayed in his compositions. Many of his compositions come from ancient Chinese poetry.

Maurice Ravel (1875-1937) was born in Ciboure, **France**. Ravel was a pianist and conductor. He was captivated by all types of music. He also loved children and creating toys and reading fairy tales out loud, often making up stories. Ravel was motivated to write music inspired by these tales, and even borrowed titles such as "Sleeping Beauty" and "Tom Thumb".

Bedrich Smetana (1824-1884) was born in modern day **Czech Republic**, and was a child prodigy performing on the violin at the age of 5! Smetana grew up on a farm and was bullied in school for being poor, so he turned to music and composition for comfort. He is now one of the greatest and most famous Czech composers of the 19th century. Smetana loved to incorporate folk songs, dances and stories in celebration of the Czech history and language.

EXTENSION:

Explore different countries. Split the students into groups of 3-4. Each group can research a different topic on each country such as: geography, language, religion, food, etc. or each group can research a country. Each group can then do a presentation on their findings.



ACTIVITY 2

STORIES AND FAIRY TALES

One way to interpret stories and fairy tales is through music. Have your students listen to each piece. You can share the brief story behind each piece or use your own interpretation or literature. For each track, ask your students: *How would you describe this music? How is it different from music you know? How might it be similar? What qualities of music help you imagine the fairy tale?*



Overture to *Ruslan and Ludmilla*

Ruslan and Ludmila is an opera based off a fairy tale written by a Russian author, Alexander Pushkin. The story says that Ludmilla, the daughter of the Prince of Kiev, was abducted by monsters that worked for an evil wizard. The knight, Ruslan, was determined to rescue Ludmilla and after many trials and magical interventions he rescues her, and they marry.



Prelude to *Hansel and Gretel*

Hansel and Gretel are a young brother and sister who are kidnapped by a witch who lives deep in the woods in a house made of cake and sweets. The witch was going to eat the children, but they outsmart her and push her into the oven and run away to safety.



Suite of Five Pieces from *Ma Mère l'Oye*
[Mother Goose] II. Tom Thumb

Hop-o'-My-Thumb (le **petit Poucet**) is the youngest of seven children in a poor woodcutter's family. His greater wisdom compensates for his smallness of size. When the children are abandoned by their parents, he finds a variety of means to save his life and the lives of his brothers while going on many exotic adventures.



"Anitra's Dance" from *Peer Gynt* Suite No. 1

Peer Gynt is a young Norwegian peasant, who dreams of becoming emperor of the world. He is quite mischievous and gets into all sorts of troubles which leads him to escape and travel to foreign continents and exotic places. While on his many journeys, Peer Gynt is mistaken for an emperor. The people salute him with a colorful Arabian dance and music.

EXTENSION:

While listening to the music again, have students draw and illustrate the characters and stories as they imagine it to be. Have the students share their creations and be sure to ask them what in the music made them visualize the scene in a particular way. (*This extension can be done with every piece listed in this resource guide*)

ACTIVITY 3

HIDDEN INSPIRATIONS

Each piece below was written based on folksongs. Listen to the folk song first and then the orchestral piece. Ask your students: *What about the two pieces are similar? What makes them sound similar? What makes them sound different?*

LISTENING EXAMPLE 1:



Andalusian music from Spain



"Aragonaise" from Suite No. 1 from *Carmen*

LISTENING EXAMPLE 2:



Chinese Folk Song



"Driving the mule team" from *Chinese Folk Songs*
arr. Zhou Long

LISTENING EXAMPLE 3:



Hungarian Folk Songs



Hungarian Dance No. 3 in F major
by Johannes Brahms

LISTENING EXAMPLE 4:



Folk song and dance of Czech Republic



"Furiant" from Three Dances from *Bartered Bride*



"Polka" from Three Dances from *Bartered Bride*

by Bedrich Smetana

Unit 2

What's your story?

Composers are often inspired by stories and fairy tales. They can express their imagination creatively through the music they write. Many composers are also inspired by the people they meet and where they grew up.

Take a moment to think about your life, your home, family and friends. Does the city that you live in mean anything to you? How about the country that you live in? Does it make you feel a certain way?



ACTIVITY 1

Many travel the world to explore new places and cultures. Composers traveled the world to learn music, studying with other great musicians and composers and learning different styles of music by embracing foreign cultures and traditions. The composers below all traveled extensively, but they all chose their home country as their muse for their compositions. Share with your students the brief history behind the music. Are they able to picture what the composer was trying to depict? What about the piece helps you to think that?



Aaron Copland "Hoe Down" from *Rodeo* for String Orchestra

Copland's ballet *Rodeo* is about cowboy life in American and is a celebration of the American West. In this piece, Copland tried to make his music sound as American as possible. Even though he was born and raised in Brooklyn, New York, he wanted to capture the geographical American landscape and pioneer spirit through his music. Although this depiction of the West is far from how America looks now, the idea gives people an image to imagine and look back on.



Samuel Coleridge-Taylor *Deep River*

Samuel Coleridge-Taylor was born in London, England to an English mother and an African father who was rescued from a slave ship by the British Navy. Growing up, Coleridge-Taylor encountered much racism, but was also given opportunities as a successful violinist and composer. One of the turning points in his life was when he heard a chorus from America performing traditional African-American spirituals. Coleridge-Taylor wrote in the preface of his series of *24 Negro Melodies*, "What Brahms has done for the Hungarian folk music, Dvorak for the Bohemians, and Greig for the Norwegian, I have tried to do for these Negro Melodies."

The link above is a recording of the actual African-American spiritual. When you come to Orchestra Hall, see if you can hear the melody of this tune as the orchestra plays Samuel Coleridge-Taylor's arrangement of *Deep River*.



Gustav Holst *St. Paul's Suite* for Orchestra IV. Finale (The Dargason)

St. Paul's Suite is named after St. Paul's Girl's School in the United Kingdom, where Holst was the Director of Music for many years. The school dedicated a large soundproof room to teach in and to compose his music in. The first piece he wrote in that room was the *St. Paul's Suite* to show his appreciation for the gift. He weaves two English folk songs together. As a teacher, Holst believed in promoting English traditional folk tunes to his students and strived to include folk songs in his compositions.

EXTENSION:

Have the students create a collage of the things that are important to them. The collage should be a representation of who they are, what they do, and what they want to be. The collage is an interpretation of their life and history depicted as visual art.

MEET THE CONDUCTOR

Michelle Merrill

Rapidly rising conductor Michelle Merrill currently serves as the Associate Conductor of the Detroit Symphony Orchestra where she also carries the title of Phillip and Lauren Fisher Community Ambassador. A passionate and dynamic artist, Ms. Merrill was named as one of Hour Detroit Magazine's 3 Cultural Organization Leaders to Watch, and was recently profiled by the Ford Motor Co. for their website fordbetterworld.org. She is also a recipient of a 2016 Solti Foundation U.S. Career Assistance Award.



Recent and upcoming engagements include the Toronto Symphony Orchestra, Jacksonville Symphony, Toledo Symphony Orchestra, Louisiana Philharmonic, Symphoria (Syracuse), Sacramento Philharmonic & Opera, Boise Philharmonic, Orlando Philharmonic, New Music Detroit, and the Northeastern Pennsylvania Philharmonic, where she formerly served as Assistant Conductor before coming to Detroit. As the Associate Conductor of the Detroit Symphony Orchestra, she helps plan and conduct over 30 concerts per season, including the renowned educational webcasts, which have reached over 100,000 students to date in classrooms throughout the nation. Ms. Merrill also gives pre-concert lectures, leads adult music education seminars, engages with students in and around Metro Detroit, speaks on behalf of the DSO throughout the community, and participates in hosting Live from Orchestra Hall, the DSO's free concert webcast that launched in 2011 and is now watched in more than 100 countries. She made her classical subscription debut with the DSO in April 2016.

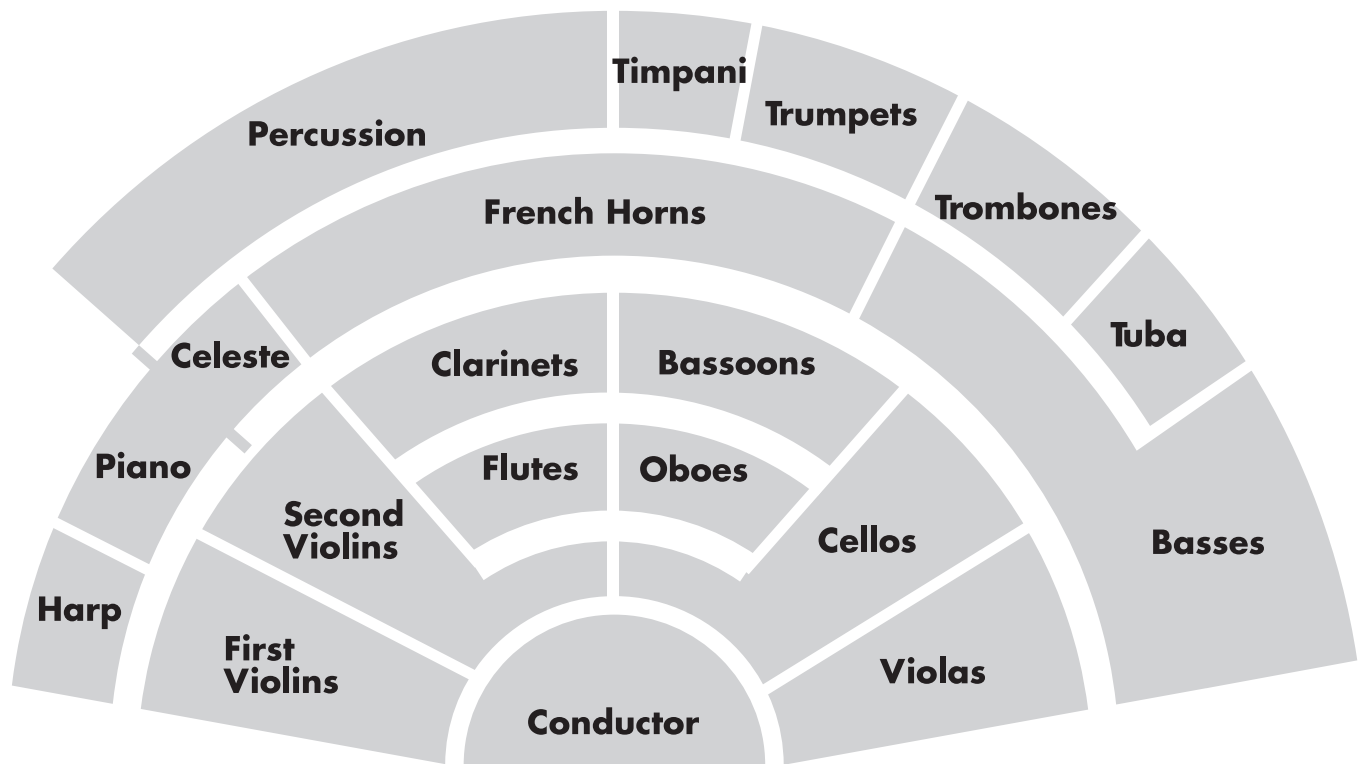
In March of 2014, Ms. Merrill stepped in on short notice with the Meadows Symphony Orchestra for their performance of Shostakovich's Symphony No. 4, which music critic Scott Cantrell of the Dallas Morning News described as "stunning" and later named to his list of Top Ten Classical Performances of 2014. She was awarded in 2013 the prestigious Ansbacher Conducting Fellowship by members of the Vienna Philharmonic and the American Austrian Foundation, which enabled her to be in residence at the world-renowned Salzburg Festival. Recent praise came from her classical debut with the DSO conducting Beethoven's Symphony No. 6: "from the off this was a heavenly 'Pastoral'...Merrill (conducting from memory) certainly has an ear for focused inner parts, and her meaningful flexibility was welcome...There was something reassuringly old-world about this performance (reminding of but not emulating such views of the music as Böhm, Boult and Klemperer) yet with a New World bloom that trod

freshly-mown grass and also looked skywards..."

A strong advocate of new music, Ms. Merrill recently conducted the world-premiere performance of Gabriela Lena Frank's "Walkabout: Concerto for Orchestra" with the Detroit Symphony Orchestra. She also worked with composer Gabriela Lena Frank and soprano Jessica Rivera in 2015 on Frank's work "La Centinela y la Paloma" (The Keeper and the Dove), as a part of numerous community programs related to the Diego Rivera and Frida Kahlo exhibition at the Detroit Institute of Arts. This past fall, Ms. Merrill collaborated with New Music Detroit for their annual marathon Strange Beautiful Music 9, which featured David Lang's "are you experienced?" and the world-premiere of Andrew Harrison's "Hum" based on the poetry of Detroit native Jamal May. In June 2015, she made her debut at the St. Augustine Music Festival conducting the world-premiere performance of Piotr Szewczyk's "St. Augustine Suite" which was written in honor of that city's 450th anniversary. The highly praised performance was later featured nationwide on NPR's "Performance Today." Additionally, her work in the 2011-12 season with Voices of Change, Dallas' professional contemporary music ensemble, was part of a program later named as one of Dallas Morning News critic Scott Cantrell's Top Ten Classical Performances of 2011.

Born in Dallas, TX, Ms. Merrill studied conducting with Dr. Paul C. Phillips at Southern Methodist University's Meadows School of the Arts, where she holds a Master of Music Degree in conducting and a Bachelor of Music in performance. Apart from music, she loves cooking, running, hiking, and spending time outdoors with her husband, Steve Merrill, who serves as the principal percussionist of the Jacksonville Symphony.

ORCHESTRA SEATING CHART



INSTRUMENTS OF THE ORCHESTRA

STRING FAMILY

The strings have made up the backbone of the western orchestra for more than three hundred years. The four major instruments in the string family, the violin, the viola, the cello and the double bass, are built the same way. The instruments are made of many pieces of wood, which are glued — never nailed — together. The bodies of the instruments are hollow, making them a resonating box for sound. Four strings made of animal gut, nylon, or steel are wrapped around pegs at one end of the instrument and attached to a tailpiece at the other. They are stretched tightly across a bridge to produce their assigned pitches. The body of the violin alone consists of over 70 parts that must be put together by a master craftsman.



The **violin** is the smallest member of the string family and is known for its extraordinary musical versatility. Its versatility along with its four-octave range has inspired composers to write extensively for the instrument. It is played with a bow and held under the chin. It plays the highest notes and is recognized by its beautiful singing tone.

The **viola** is slightly bigger than the violin and is also played with a bow and held under the chin. The sound of the viola can be distinguished from that of the violin because of its darker, warmer and richer tone qualities.

The **cello** is also played with a bow. Unlike the violin or viola, it is too large to be placed on the shoulder, so it is played sitting down, resting on its “end pin.” Because of its size and the thickness of its strings, the cello can produce beautiful, rich deep tones.

The **double bass** is the largest and lowest-pitched bowed string instrument and must be played standing up. In orchestras and other musical ensembles it has a rather special role — it is often given the job of being the “foundation of the orchestra.”

One of the oldest instruments, the **harp** dates back as early as 3500 BC. The modern concert harp typically has 47 strings and is six feet tall. It has pedals around its base that allows the performer to alter the pitch of the strings so different notes be played on the same string. Smaller harps, and even lyres, are still used today in the performance of folk music around the world.

WOODWIND FAMILY

The woodwind family got its name because they were originally all made of wood (the flute is now made of metal) and air, or wind, is needed to play them. Woodwind instruments make sounds in three different ways. The flute makes a sound by blowing air through an opening in the head joint. The clarinet uses a single reed, made of one piece of cane, to produce sound. When air is blown against the reed, which is attached to a mouthpiece, it vibrates to make sound. The oboe and bassoon use a double reed, or two pieces of cane vibrating against each other, to make a sound.



The **flute** was originally made of wood. It has no reed and sound is produced when air is blown against a hole in the headjoint (opening). This sends vibrations into the attached tube to produce sound. A shorter version of a flute, about half of its size, is called a piccolo. It plays the highest notes of all of the woodwinds.

The **oboe** is smaller than the clarinet and uses a double reed. It is made of a hard wood and has metal keys. The oboe is responsible for tuning the orchestra before each concert.

A larger version of the oboe, called the **English horn**, is frequently used in the orchestra. Like the oboe, it has a double reed and uses many of the same fingerings. The instrument has a slightly lower range than the oboe.

The **clarinet** looks much a like an oboe — made of a hard wood, with metal keys. The difference is that the clarinet uses a single reed. The clarinet comes in different sizes. The standard Bb clarinet is just over 2 feet long.

The **bassoon** uses a double reed and is about four times the size of an oboe. If the curved tubes in the bassoon were straightened, it would be about nine feet long! The bassoon sounds in the tenor and bass registers.

The **contrabassoon** is a larger version of the bassoon that can play many of the same notes as a bassoon, but sounds them one **octave** lower.

BRASS FAMILY

Brass Family instruments produce their sound when the player buzzes his/her lips while blowing air through a metal, cup-shaped mouthpiece. The mouthpiece connects to a length of brass tubing that ends in a bell. The smaller instruments have less tubing and produce a higher sound. The bigger instruments have more tubing, which produces a lower sound. Most of the brass instruments have valves, which open up different lengths of tubing, changing the pitch. The members of the brass family are the loudest in the orchestra and can trace their ancestry back to herald trumpets, hunting horns and military bugles.



The **trumpet** plays the highest notes in the brass family. Some types of trumpet-like instruments were some of the earliest human artifacts! Trumpets come in many different sizes and keys.

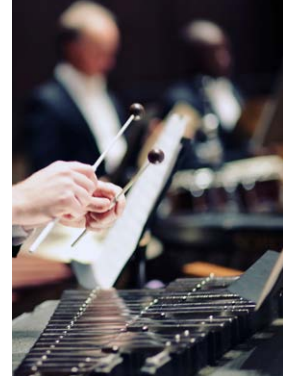
The **horn** consists of up to 18 feet of narrow tubing wound into a circle. It evolved from 16th century hunting horns.

The **trombone** is played with a mouthpiece, larger than the trumpet, and shortening or lengthening a large slide controls pitch. Its sound is lower than a trumpet but higher than a tuba. The trombone has about nine feet of tubing!

The **tuba** is the lowest in the brass family and can have up to 18 feet of tubing! It is played by buzzing one's lips into a mouthpiece. Along with the string bass, it helps provide a foundation for the orchestra.

PERCUSSION FAMILY

The instruments in the percussion family are played by being struck, shaken, or scraped. There are two types of percussion instruments, tuned and untuned. The tuned notes play specific pitches, like the timpani. The untuned produce a sound with an indefinite pitch, like the cymbals. Percussion instruments add much color, variety and excitement to the orchestra. Drums are among the earliest instruments. Their ancestors can be found in Africa, Asia, the Americas, Europe and the Middle East.



The **snare drum** has two drumheads, one on the top and one on the bottom. Bands of metal wires are pulled across the bottom head to produce a buzzing or snapping sound when the drum is struck, giving it a rattling sound. The snare is an untuned instrument and is played using a variety of techniques.

The **bass drum** is built like a snare drum but without the metal snares. It is a very big instrument and produces a very low sound. The mallet is usually large and covered with a soft material, like sheep's wool or felt. The bass drum has been with the orchestra since 1782.

Cymbals are two large, metal discs that can be played by crashing one against the other or by hitting or scraping one or both with sticks or mallets. Cymbals come in different sizes and can produce a large variety of sound effects. Cymbals are an untuned percussion instrument.

The **timpani**, often called a kettledrum because of its looks, has a pedal mechanism which allows the musician to adjust the tension of the drumhead. This allows it to play different pitches. The timpani helps the orchestra with harmony, melody and rhythm. Most often, there are four timpani tuned to different pitches, played by one person.

In addition, in contemporary music, virtually anything can be used as a percussion instrument, including water glasses, scrap metal, car horns, and much more! Virtually anything that is struck with mallets or one's hands or body, whether pitched or unpitched, is considered a percussion instrument.

Perhaps the most recognizable and popular musical instrument, you might think the **piano** would belong to the string family, but it is actually a member of the percussion family because of how the instrument creates sound. The piano has a keyboard with 88 keys — the black and white bars you see — and each key is attached to a small, felt covered hammer. When a key is pressed, the hammer pops up and strikes the strings, which then vibrate creating specific pitches.

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