



# SUPERSONIC SCIENCE!



Shreveport Symphony Orchestra  
Discovery Concerts  
January 26 - 27, 2017



# WELCOME!

Dear Teachers,

We are so excited to present our 2017 Discovery Concert: “Supersonic Science” to the 4th and 5th graders of Caddo, Bossier, Webster, and DeSoto Parishes. This Teacher Guide contains a variety of resources to use in your classroom before and after the concert: information about the orchestral instruments, historical information about each composer and piece featured in the concert, and a listening guide with student worksheets and notable features about each piece. You will also find links to STEM-oriented activities and lesson plans that you may use and/or adapt for your students as needed. You may also wish to review the “Audience Etiquette” with your students and chaperones beforehand.

Thank you so much for all that you do to support the arts and help your students to develop a lifelong appreciation of music. We hope that this concert will be rewarding and enriching for all who attend!

If you have any questions or need to make any changes to your reservation, please feel free to get in touch with me at 318-222-7496 or [cdean@shreveportsymphony.com](mailto:cdean@shreveportsymphony.com).

Sincerely,  
Callie Dean  
Education & Community Engagement Manager  
Shreveport Symphony Orchestra

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## SPECIAL THANKS TO OUR SPONSORS!

We are so grateful for the support of our community partners and sponsors who have made the 2017 Discovery Concerts possible!



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# MEET THE ORCHESTRA

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The word “orchestra” comes from a Greek word that originally referred to the space in between the auditorium and the proscenium (stage), where the chorus and instrumentalists were seated.

Large orchestras may be called “symphony orchestras” or “philharmonic orchestras.” The modern symphony orchestra is divided into four different “families” of instruments -- strings, woodwinds, brass, and percussion -- who are led by a conductor. More than 50 professional musicians will be onstage during the Discovery Concerts!

## THE STRING FAMILY

In the symphony orchestra, there are four main types of string instruments: **violins**, **violas**, **cellos**, and **double basses**. Each of these instruments has four strings, which are attached to a hollow, wooden sound box. Musicians make the strings vibrate by rubbing a bow against them or plucking them.



*From left to right: violin, viola, cello, double bass, harp*

During the concert, you will see more violins than any other instrument onstage. The violins are divided into two different sections (1st and 2nd violins), who each play different parts. The first chair violinist is called the concertmaster. He will walk onstage last and lead the orchestra in the tuning process.

Other string instruments that are used occasionally in symphony concerts include the **guitar**, **piano**, and the **harp**.

## THE WOODWIND FAMILY

The woodwind instruments that you will see onstage include the **flute**, **oboe**, **clarinet**, and **bassoon**. Other woodwind instruments include the **saxophone**, **recorder**, and **bagpipes**. Woodwind instruments used to be made of wood, but today they are typically made of metal. Musicians create sound by blowing air either into or across the mouthpiece.



*From left to right: piccolo, flute, oboe, clarinet, bassoon*

Some woodwind instruments have reeds: a thin strip of material connected to the mouthpiece that vibrates and produces sound when the musician blows air. The clarinet and saxophone have a single reed, while the bassoon and oboe are considered “double reed” instruments.

# MEET THE ORCHESTRA

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## THE BRASS FAMILY

The main brass instruments in a symphony orchestra include the **French horn**, **trumpet**, **trombone**, and **tuba**. Most brass instruments are actually made out of brass, and musicians create sound by buzzing their lips into the mouthpiece, creating vibrations. The rest of the instrument, with its long tubing and valves, helps to amplify the noise and create different pitches.

Brass instruments are known for their exuberant, loud sound! In addition to symphony orchestras, brass musicians perform in big bands, marching bands, and jazz ensembles as well.



*From left to right: French horn, trumpet, trombone, tuba*

## THE PERCUSSION FAMILY

Percussion instruments create sound when they are struck or shaken. The oldest and most common percussion instrument around the world is the **drum**. The percussion family consists of both rhythm instruments (i.e. **tambourine**, **cymbals**, **gong**, and **triangle**) and melodic instruments (i.e. **bells**, **xylophone**, **glockenspiel**). You will notice that the percussionists onstage play many different instruments during the performance!



*From left to right: timpani, snare drum, xylophone, bass drum*

# MEET THE ORCHESTRA

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The leader of the orchestra is called the conductor, or maestro (“master”). The Shreveport Symphony Orchestra’s conductor is Maestro Butterman. He plans the music that the audience will hear, and decides how to interpret the music that the composer has written. With his right hand, he uses a baton to keep a steady beat for the musicians to follow. He also uses his left hand to communicate some of the more expressive qualities of the music. He is responsible for making sure the orchestra members play together and helping them to perform to the best of their abilities.

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## MAESTRO MICHAEL BUTTERMAN

Making his mark as a model for today’s conductors, Michael Butterman is recognized for his commitment to creative artistry, innovative programming, and to audience and community engagement. In addition to his leadership of the Shreveport Symphony, he serves as Music Director for the Boulder Philharmonic Orchestra, Music Director of the Pennsylvania Philharmonic, and Resident Conductor of the Jacksonville Symphony Orchestra. He is also in his 16th season as Principal Conductor for Education and Community Engagement for the Rochester Philharmonic Orchestra, the first position of its kind in the United States.

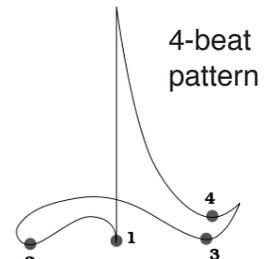
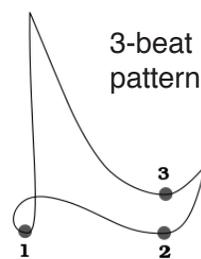
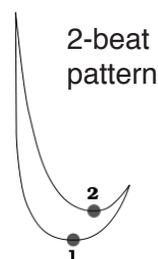
Mr. Butterman began studying music at the age of seven. He took piano lessons beginning in the second grade, and added violin the next year. He enjoyed music so much that he became a violinist in the Northern Virginia Youth Symphony, and practiced piano for hours each day. He eventually entered and won several piano competitions when he was in high school.

Although he loved music, he decided to concentrate on studies in chemistry when he was in college. He remained involved in music by playing piano for his school’s choruses. One year, he was asked to conduct the choruses, and discovered how much he enjoyed working with other musicians to prepare concert programs. Mr. Butterman then decided to get some specialized training in conducting, and enrolled at Indiana University.

Michael Butterman’s work has been featured in five nationwide broadcasts on public radio’s Performance Today, and can be heard on two CDs recorded for the Newport Classics label and on a new disc in which he conducts the RPO and collaborates with actor John Lithgow. Today, he lives in Shreveport with his wife, Jennifer (who plays violin in the SSO), and their daughter, Olivia.

### YOUR TURN!

Try conducting your classmates using the beat patterns at right!



# AUDIENCE ETIQUETTE

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Going to a concert might be a new experience for your students. As audience members, they have an important job to play in helping the concert to go smoothly. Please share the following guidelines with your students to help them prepare for, and make the most of, their field trip.

## BEFORE THE CONCERT

When your bus arrives at RiverView Theater, a volunteer will lead you from your bus into your seats. You will be asked to walk in a single-file line to your seating area. Please move quickly and quietly, and stay together! RiverView Theater is a big place!

After you are shown to your seats, please stay seated. When people are standing and talking in the aisles, it takes us much longer to get everyone seated.

You'll notice the musicians warming up onstage. Just as an athlete warms up before a big game, the musicians have to, also. Watch them to see if they do anything surprising.

## DURING THE CONCERT

When the lights will go down, you'll know the concert is about to start. When the concertmaster walks onstage, clap enthusiastically! She will help the orchestra tune. After the concertmaster sits down, your conductor, Michael Butterman, will walk onstage. Again, clap loudly for Maestro Butterman and the musicians. Then get ready to listen!

During the concert, please do not take pictures or video (flash or otherwise).

While the music is playing, listen and watch carefully. Think about things you learned from the lessons in this packet, and pay attention to what instruments are playing as well as the pieces. Keep your hands to yourself and do your best to sit still. After each piece ends (and you see the conductor's hands stop), clap loudly to thank the orchestra for performing.

Sometimes Maestro Butterman might ask the audience a question. This is your turn to add to the concert experience! Please answer him (or raise your hand) so he knows you are listening. When he turns to face the musicians, you should be silent and get ready to listen actively again.

If a neighbor is talking, try to ignore them, or quietly get the attention of your teacher.

## AFTER THE CONCERT

After the orchestra plays the last piece, someone will walk onstage and give a few brief closing comments and begin dismissing you. When you leave to find your bus, please stay together in a single-file line.

On your way back to school, talk to your friends about what you saw and heard. Tell them your favorite piece and ask them what their favorite piece was.

When you arrive back in your classroom, you can write a letter to the SSO about your concert experience! (see page 18).

Be sure and tell your parents about this concert when you get home!

# LISTENING GUIDE

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## CONCERT REPERTOIRE AND LISTENING LINKS

Shreveport Symphony Orchestra  
“Supersonic Science” Discovery Concerts  
RiverView Theater: January 26 - 27, 2017

Georges Bizet (1838 - 1875)

[“Farandole” from \*L’Arlesienne Suite No. 2\*](#)

J. S. Bach (1685 - 1750)

[“Air” from \*Orchestral Suite No. 3\*](#)

Johannes Brahms (1806 - 1872)

[“Scherzo” from \*Serenade No. 2 in A Major\*](#)

Giuseppe Verdi (1813 - 1901)

[“Triumphal March” from \*Aida\*](#)

Sergei Prokofiev (1891 - 1953)

[“Montagues and Capulets”](#)

from *Romeo and Juliet Suite No. 2*

Peter Ilyich Tchaikovsky (1840 - 1893)

[Symphony No. 6: Movement III](#)

Click on the blue text above to access a YouTube video of each song.

### CONTENT STANDARDS

**Did you know?** Attendance at the Discovery Concert will help your students meet the following academic standards:

**Music:** M-AP-6, M-HP-3, M-HP-5, M-CA-4

**Science:** PS-E-C1

## PREPARING FOR THE CONCERT: HOW TO USE THIS LISTENING GUIDE

**Music Content Standards: M-AP-1, M-AP-5, M-HP-5, M-CA-2, M-CA-3**

Use the following pages of the listening guide to introduce your students to the songs that they will hear at the Discovery Concert. Familiarizing your students with the music ahead of time will help them listen critically and enrich their concert experience. Here are just a few ideas:

- Click on the links above to access YouTube videos of each song. Play the songs as background music as your students enter class and/or do their assignments.
- Share background information about each composer and piece.
- As you listen to the song together, point out notable musical features (see “Listen For”)
- Print out the Listening Guide worksheet on the next page, and invite students to fill it out in order to build their critical listening skills and musical vocabulary.
- After the concert, choose one or more pieces to study in depth with your class.

# LISTENING GUIDE WORKSHEET

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## TEMPO

How would you describe the **tempo** (speed)?

## DYNAMICS

How would you describe the **dynamics** (volume)?

Song Title:  
\_\_\_\_\_

Composer:  
\_\_\_\_\_

## INSTRUMENTS

What instruments do you hear playing?

## MOOD

How would you describe the mood of the piece? Where might you expect to hear it played?

Write or draw an image to illustrate this song and help you remember what it sounds like.

# LISTENING GUIDE

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## GEORGES BIZET

“Farandole” from *L’Arlesienne Suite No. 2*

Life Dates: 1838 - 1875

Nationality: French

Musical Period: Romantic

Known for: operas and symphonic works

Major Works: *Symphony No. 1 in C Major* (1855), *L’Arlesienne* (1872), *Carmen* (1875)

Bizet was born in Paris to parents who had musical backgrounds; his father was a singer and composer, while his mother was a pianist. Remarkably, Bizet could read and play music by the age of four. He was admitted to the Paris Conservatory by the age of ten, and by the time he was seventeen, he had composed many famous songs, including his first symphony.

Bizet is best known for his opera *Carmen*, which premiered just three months before his death at age 36. The opera initially received modest reviews but began to take off about three years later, and today it is one of the most popular operas of all time.

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## “FARANDOLE”

[https://www.youtube.com/watch?v=g\\_o82Mxw6Bs](https://www.youtube.com/watch?v=g_o82Mxw6Bs)

“Farandole” was composed as one of 27 pieces to accompany the play *L’Arlesienne* (*The Woman From Arles*). The play itself was not successful, but Bizet’s music survived, and the composer later assembled several of the movements into two different orchestral suites.

The opening tune of the “Farandole” comes from an old Christmas tune called “Marche de Terrenne” (March of the Kings). The second theme, the farandole, is a lively French dance tune, similar to a gavotte, jig, or tarantella.

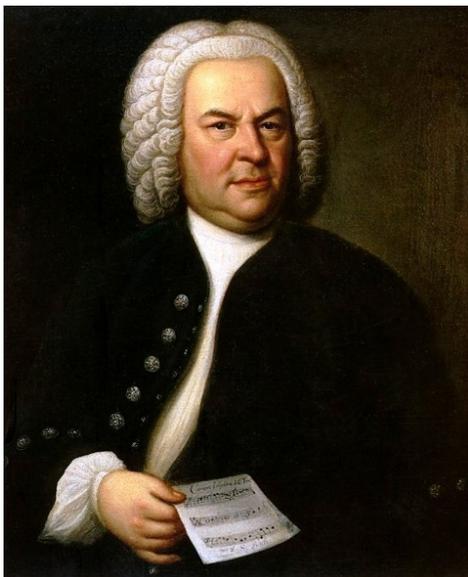
## LISTEN FOR...

- 0:00 - The opening march theme, played first by the orchestra and then the string section, in a strong 4/4 meter
- 0:42 - The second farandole (dance) theme enters softly in a 2/4 meter
- The farandole theme builds in volume and intensity as the song progresses
- 2:42 - Just before the final climax, the two themes are played at the same time

# LISTENING GUIDE

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## J. S. BACH

### “Air” from *Orchestral Suite No. 3*

**Life Dates:** 1685 - 1750

**Nationality:** German

**Musical Period:** Baroque

**Known for:** organ and keyboard music; orchestral, chamber, and choral music, development of counterpoint style through numerous fugues and canons

**Major Works:** *The Well-Tempered Clavier* (1722), the six *Brandenburg Concertos* (1721), *St. Matthew Passion* (1727), *Tocatta and Fugue in D minor* (ca. 1703 - 1707), *Goldberg Variations* (1741)

J.S. Bach came from a musical family, and belonged to the fifth (of seven) generations of professional musicians. He was born in Eisenach, Germany. When he was 10, he moved in with his brother, a church organist, after his parents died.

Bach was a violinist, organist, and composer of more than 1000 works of music. He was a devout Lutheran, and much of his music was written for the church. He had 20 children; 7 with his first wife, Maria; and 13 with his second wife, Anna Magdalena

Bach's music was largely forgotten for years after his death. In 1829, Felix Mendelssohn sparked a revival when he conducted the *St. Matthew Passion*. Today, Bach is widely considered to be one of the most important and influential composers in Western music.

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## “AIR” (ORCHESTRAL SUITE NO. 3)

<https://www.youtube.com/watch?v=JU2P3aRk8ko>

Bach's Suite No. 3 is probably the most famous of his four orchestral suites. It was written around 1730 and contains five different movements. The second movement, “Air,” is the only movement that is not based on a French dance. It is written for the string section and continuo (played by bass and harpsichord) only; all of the other instruments rest during this movement.

In the 19th century, violinist August Wilhelm transposed the movement into the key of C so that he could play the entire melody on the G string. Today the so-called “Air on the G string” is often played at weddings because of its slow, beautiful melody.

## LISTEN FOR...

- ♪ The walking bass line that plays 8th notes in octave leaps throughout the piece.
- ♪ The melodies of the violins and violas that interact with each other.
- ♪ Surprisingly dissonant harmonies that are formed when the melodic line “clashes” with other lines
- ♪ The cadences at the end of each section (when the motion of the piece “stops”)! The entire movement is only 18 measures long. The first 6-measure section repeats once, with a different ending the second time; and the second 12-measure section repeats as well. Thus the form of the piece is A A' B B

# LISTENING GUIDE

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## JOHANNES BRAHMS

### “Scherzo” from *Serenade No. 2 in A major*

**Life Dates:** 1833 - 1897

**Nationality:** German

**Musical Period:** Romantic

**Known for:** symphonies, chamber music, piano pieces, choral compositions

**Major Works:** *Piano Concerto No. 1* (1859), *German Requiem* (1868), “*Wiegenlied*” (Brahms’s Lullaby) (1868), *Hungarian Dances* (1869), *Academic Festival Overture* (1880), *Tragic Overture* (1880)

Brahms’ father was a double bass player and his mother was a seamstress. He began playing piano at age seven and began studying theory and composition when he was 13. During his teenage years, he played music and taught piano lessons to earn money for his family.

Brahms was soon declared a musical genius by music critic Robert Schumann; Robert and his wife Clara became dear friends to Brahms. Throughout his life, he was a successful, stable musician. His first symphony is sometimes referred to as “Beethoven’s tenth,” because it is seen as a continuation of Beethoven’s style and greatness.

He was the first great musician to have his voice recorded. (Thomas Edison invented the phonograph twenty years before Brahms’s death and fortunately his invention was used to record famous people of the time.)

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## “SCHERZO” (SERENADE NO. 2)

<https://www.youtube.com/watch?v=Swe5QmG2EYc>

Brahms planned for the *Serenade No. 2* to be his first major work for an entire orchestra. It is broken up into five movements, in contrast to the four-movement structure of a typical Romantic symphony. Brahms scored the work without violins, so most of the melodic lines are played by wind instruments instead of violins.

The second movement, “Scherzo,” occurs just before the beautiful slow movement. It is one of two dance movements in the *Serenade*; and is a light, playful, and folksy work with lively rhythms.

## LISTEN FOR...

- ♪ The tone colors of the woodwind family. Notice that there are no loud brass, percussion, or high strings (violins) to distract attention from the woodwinds.
- ♪ The brisk tempo and predominance of staccato (short) notes that contribute to a lighthearted feel appropriate for the movement’s title: Scherzo (joke).
- ♪ The rounded (ABA) form of the music
- ♪ The darkening of the mood when the harmonies—briefly—turn to the minor mode in the middle of the piece

# LISTENING GUIDE

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## GIUSEPPE VERDI

“Triumphal March” from *Aida*

Life Dates: 1813 - 1901

Nationality: Italian

Musical Period: Romantic

Known for: operas, Italian nationalist works

Major Works: *Rigoletto* (1851), *La Traviata* (1853), *Falstaff* (1893), *Otello* (1887), and the *Requiem Mass* (1874)

Interested in learning more about the Triumphal March? Download the Amplify lesson plan at <http://shreveportsymphony.com/site/wp-content/uploads/2016/07/TRIUMPHAL-MARCH.pdf>.

Verdi was born into a peasant family in Le Roncole, Parma, Italy. As a child, he learned to play the organ but was rejected from the prestigious Milan Conservatory.

Verdi lived during the rise of Italian Nationalism and was active in the political movement to unite Italy. In fact, Italian nationalists used his name (VERDI) as an acronym for “Vittorio Emanuele, Re d’Italia,” (“Victor Emanuel, King of Italy”). After Italy was united, Verdi was elected to serve in the first Italian Parliament, from 1860 - 1865.

Verdi wrote 28 operas during his lifetime, with his most famous composed during the middle of his career (1851 - 1871). He became rich and famous in his lifetime. When he died at the age of 87, he was considered a national hero.

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## “TRIUMPHAL MARCH” (AIDA)

<https://www.youtube.com/watch?v=t5zpUnmojq4>

Verdi was commissioned to write *Aida* in order to celebrate the opening of Cairo’s great Khedivial Opera House. The tragic opera takes place in ancient Egypt and tells the story of star-crossed lovers Aida, an Ethiopian princess who is enslaved to Egyptian princess Amneris, and Radames, a successful Egyptian general. During the second act of the opera, Egypt celebrates a military victory over Ethiopia with the “Triumphal March.” A giant parade of dancers, singers, musicians, and the returning army perform a hymn of praise to the goddess Isis. The trumpets open the piece with a fanfare, and later carry the main melody of the piece.

Verdi created special trumpets for the “Triumphal March” in an attempt for the march to sound as historically accurate as possible. Recent Egyptian archaeology had discovered simple, valveless horns, and the march’s main tune, played by the special, valveless trumpets, uses only five different pitches. Interestingly, in 1925, archaeologists discovered two horns in King Tutankhamen’s tomb, tuned in A-flat and in B -- exactly the same keys that Verdi used for the theme of his “Triumphal March!

### LISTEN FOR...

- ♪ The piece opens with a trumpet fanfare on one pitch, which is “interrupted” by the string section
- ♪ Then the whole orchestra enters, with a big crescendo into the main theme of the song.
- ♪ The main theme is played by the special, valveless trumpets in the key of A-flat, and then again in the key of B.

# LISTENING GUIDE

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## SERGEI PROKOFIEV

“Montagues and Capulets”  
from *Romeo and Juliet Suite No. 2*

**Life Dates:** 1891 - 1953

**Nationality:** Russian

**Musical Period:** 20th Century

**Known for:** symphonies, concertos, ballets, and film scores

**Major Works:** “Classical” Symphony No. 1 (1916 - 17), *Lieutenant Kije Suite* (1934), *Peter and the Wolf* (1936)

Prokofiev was born in Soutzovka, what is now the Ukraine. His father was an agricultural engineer and his mother was a pianist (and became his first piano teacher).

Prokofiev began composing at an early age. By the time he was 12 he had composed an opera, a four-movement symphony and about 70 small piano pieces. He was also an accomplished pianist and conductor.

In 1914, he had an opportunity to meet Diaghilev, a great ballet choreographer and a ballet impresario who commissioned a ballet from him. In 1918, he visited the U.S and playing his first solo concert in New York.

He created new and original formulas of rhythmic, melodic and harmonic combinations that became the recognized style of his music. Because he was liked to use dissonant and powerful harmonic combination, some critics called his music, “football music.” In 1953, he died from a brain hemorrhage on the same day as Josef Stalin, the premier of the Soviet Union.

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## “MONTAGUES AND CAPULETS”

[https://www.youtube.com/watch?v=p1\\_JUTAOOSA](https://www.youtube.com/watch?v=p1_JUTAOOSA)

In 1934, Prokofiev was commissioned by the Kirov Theatre to write a ballet score based on Shakespeare’s play *Romeo and Juliet*. However, the Bolshoi Ballet, the company that was supposed to premiere the work, initially rejected the score, finding his dissonant harmonies and unconventional rhythms difficult to choreograph. A smaller, less well known company ended up staging the first performance in 1936. However, the Bolshoi Ballet finally did perform the work in 1948, to great critical and popular acclaim. Later, Prokofiev extracted several of the ballet’s movements into three orchestral suites, as well as a 10-movement work for solo piano.

### LISTEN FOR...

- 0:00 - Angry dissonant harmonies at the beginning of the movement
- 1:25 - The low strings, brass, and woodwinds accompany the melody with a weighty, plodding beat
- 1:31 - The jaunty pesante (heavy) theme, played by the strings, represents the stand-off between the feuding families
- 3:25 - The slow middle section, featuring the flutes, representing Juliet’s first dance with her parent’s chosen suitor

# LISTENING GUIDE

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## PETER ILYICH TCHAIKOVSKY

### *Symphony No. 6, Movement 3*

**Life Dates:** 1840 - 1893

**Nationality:** Russian

**Musical Period:** Romantic

**Known for:** symphonies and ballet music

**Major Works:** *Swan Lake* (1876), *Romeo and Juliet* (1880), *1812 Overture* (1880), *Sleeping Beauty* (1889), *The Nutcracker* (1892)

Tchaikovsky studied music as a child, but he originally went to law school before deciding to make music his career. He studied at the St. Petersburg Conservatory and eventually taught at the Moscow Conservatory.

Tchaikovsky was financially supported by a wealthy patron named Nadezhda von Meck. They wrote each other many letters but never met in person.

Tchaikovsky's works are known for their beautiful melodies and deep emotion. Many of his orchestral works were composed in melancholy minor keys.

Tchaikovsky traveled all over the world to share his music and conduct major orchestras. He even visited the United States in 1891, where he conducted the New York Music Society's orchestra during the opening-night concert at Carnegie Hall.

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## SYMPHONY NO. 6: MOVEMENT 3

<https://www.youtube.com/watch?v=TEsXxALaMIO>

Tchaikovsky's 6th Symphony was his last, premiering just nine days before he died of cholera. It is nicknamed "Pathétique" (meaning "full of pathos," not "pathetic") because of its deep emotional weight. Like most Romantic symphonies, it contains four movements; however, in a break from tradition, Tchaikovsky wrote the final movement to be slow and gloomy rather than a fast, energetic finale. The 3rd movement, in contrast, is quick and upbeat and follows a sonata-allegro form (ABA: exposition, development, recapitulation), with a triumphant march at the end.

### LISTEN FOR...

- ♪ The "perpetual motion" opening in the strings
- ♪ The march theme appears first in a minor key, then in a major key
- ♪ The triumphant finale, or coda, section.

# MAKE YOUR OWN INSTRUMENTS

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The demonstrations in the Discovery Concerts show students how they can make music using everyday objects around them. Use the links below to create your own instruments! You may even want to have your students compose their own songs specifically for their new instruments.

## RUBBER-BAND GUITAR



Photo credit: Busy Bees Kids Crafts

[http://www.nyphilkids.org/lab/make\\_rubberguitar.html](http://www.nyphilkids.org/lab/make_rubberguitar.html)

**Materials Needed:** a cardboard or styrofoam box, rubber bands in a variety of thicknesses, cardboard tube, scissors

## DRINKING-STRAW PAN FLUTE



Photo Credit: KidsSpot.com

<http://www.kidspot.com.au/things-to-do/activities/make-a-straw-flute>

**Materials Needed:** 8 plastic drinking straws, Scotch tape, scissors, ruler, pen or pencil

## SODA-BOTTLE TRUMPET



Image Credit: nyphilkids.org

[http://www.nyphilkids.org/lab/make\\_trumpet.html](http://www.nyphilkids.org/lab/make_trumpet.html)

**Materials Needed:** plastic soda bottle, paper towel or wrapping paper tube, masking or duct tape, construction paper

## BALLOON DRUM



Photo Credit: balloondrums.com

<http://www.balloondrums.com/howtomakeyourown.html>

**Materials Needed:** Bowls or Coffee Cans, Balloons, Masking Tape, Chop sticks

### LISTEN TO A HOMEMADE ORCHESTRA!

The [Landfill Harmonic](#) plays instruments made out of trash!

The [Vegetable Orchestra](#) plays instruments made out of fresh vegetables!

What other objects in the world around you could you turn into a new kind of orchestra?

# SCIENCE LESSONS

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Here are some links to lesson plans for 4th and 5th graders that will help your students continue to explore the science of sound!

## PITCH PERFECT

by Penny Sun, Veronica Gould, and Rachel Ji

<http://experiential.williams.edu/files/WavesLesson4full.docx>

In this lesson, students will participate in a scientific investigation using water bottles as homemade instruments. As they change certain variables (how full the water bottle is, how to produce sound), they will listen for how the resulting pitch changes.

## SOUND VIBRATIONS

by PBS Learning Media

[http://lpb.pbslearningmedia.org/resource/phy03.sci.phys.howmove.lp\\_sound/sound-vibrations/](http://lpb.pbslearningmedia.org/resource/phy03.sci.phys.howmove.lp_sound/sound-vibrations/)

This lesson contains multiple videos, links, and activity ideas to help students visualize the way in which vibrations produce sound.

## HOW DOES SOUND TRAVEL IN DIFFERENT ENVIRONMENTS?

By Debra Hall and Crystal Patillo

<https://kenanfellows.org/kfp-cp-sites/cp05/cp05/lesson-seven-how-does-sound-travel-different-environments/index.html>

In this lesson, students will physically demonstrate how sound travels through different mediums (solids, liquids, and gases). Then they will work in pairs to test out their hypotheses.

## ANTI-SOUND SPRING

By Exploratorium Teacher Institute

<https://www.exploratorium.edu/snacks/anti-sound-spring>

This activity demonstrates what happens to a sound wave when noise is either amplified or canceled out. A coiled phone cord helps students to visualize the sound waves.



# ACTIVITY PAGE

Write the letter of the instrument next to its matching picture.

## WORD BANK

- A. Flute
- B. Trombone
- C. Cello
- D. Timpani
- E. French horn
- F. Oboe
- G. Harp
- H. Xylophone
- I. Violin
- J. Bassoon

1. \_\_\_\_\_



2. \_\_\_\_\_



3. \_\_\_\_\_



4. \_\_\_\_\_



5. \_\_\_\_\_



6. \_\_\_\_\_



7. \_\_\_\_\_



8. \_\_\_\_\_



9. \_\_\_\_\_



10. \_\_\_\_\_



Now go back and color all of the **STRING** instruments **RED**.  
Color all of the **BRASS** instruments **YELLOW**.  
Color all of the **PERCUSSION** instruments **BLUE**.  
Color all of the **WOODWIND** instruments **GREEN**.

# WRITE US A LETTER!

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Dear Shreveport Symphony Orchestra,

I came to a Discovery Concert on \_\_\_\_\_ (date).

My favorite part of the concert was \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

My favorite instrument was \_\_\_\_\_

\_\_\_\_\_

I was surprised by \_\_\_\_\_

\_\_\_\_\_

I learned \_\_\_\_\_

\_\_\_\_\_

I am glad \_\_\_\_\_

\_\_\_\_\_

Your friend,

\_\_\_\_\_ (name)

Teachers: Please mail this letter to:

Callie Dean  
Shreveport Symphony Orchestra  
P.O. Box 205  
Shreveport, LA 71162-0205