

# DISCOVER:

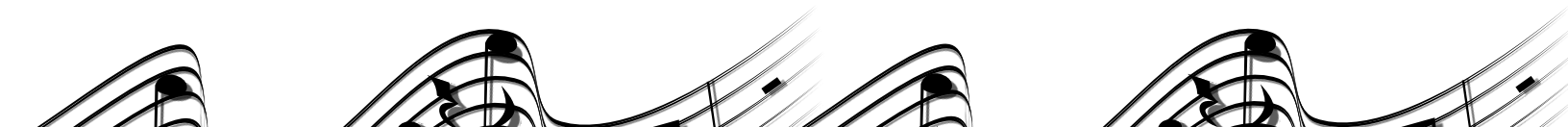
## EXPLORING SOUNDS

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**2023-2024  
STUDY GUIDE**

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[www.fwsymphony.org](http://www.fwsymphony.org)



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## CONCERT ETIQUETTE GUIDE

### Concert Insight

Orchestras typically play “classical” music, but most people hear orchestra music regularly without even realizing it! Movies, video games, TV shows, and other kinds of musicians like pop singers and rock stars and hip hop artists sometimes perform with orchestras.

The Fort Worth Symphony Orchestra has 68 fully professional musicians who play dozens of concerts together a year.

In a professional orchestra, musicians arrive to the first rehearsal fully prepared to play their parts individually and with knowledge of how their part is supposed to fit within the broader whole. The orchestra practices together one to five times together before they perform. They are like a pro sports team that has practiced together for years — everyone shows up ready to play their part perfectly.

In a professional orchestra, there is a music director, who conducts many of the concerts. For the other concerts, there are guest conductors. Different conductors have different styles and bring out different emotions in the music, sometimes even with the same piece of music.

Sometimes, there will be a soloist, or a musician who stands at the front of the stage to play a concerto, or a long solo part with the orchestra as accompaniment. These players are very, very skilled and travel all over the country or even the world to play with different orchestras.

### Etiquette

During a concert, listeners are expected to sit quietly in their seats to enjoy the music and not distract their fellow listeners. They are “sharing” the space with each other. Phones should still be silent, and students are asked to speak quietly to not distract other students or the musicians onstage.

### Things to Note: Music and Feelings

Classical music usually doesn't have words. This style is all about the feelings of the music.

Sometimes, the music will be fast and loud and exciting, with the whole orchestra playing together. Sometimes, it will be soft and slow and calming, with smaller groups of musicians playing together.

There is not a "right" way to feel classical music. All emotional responses are valid. Students of all ages can enjoy discussing the feelings of the music and why they think it made them feel that way.

### Types of Music

Orchestras usually play more than one piece of music in a concert, and usually the different pieces are different types of compositions. Sometimes the pieces are continuous music, and sometimes they are broken into different sections or "movements."

Often there is an "overture" or a shorter work to kick off the concert.

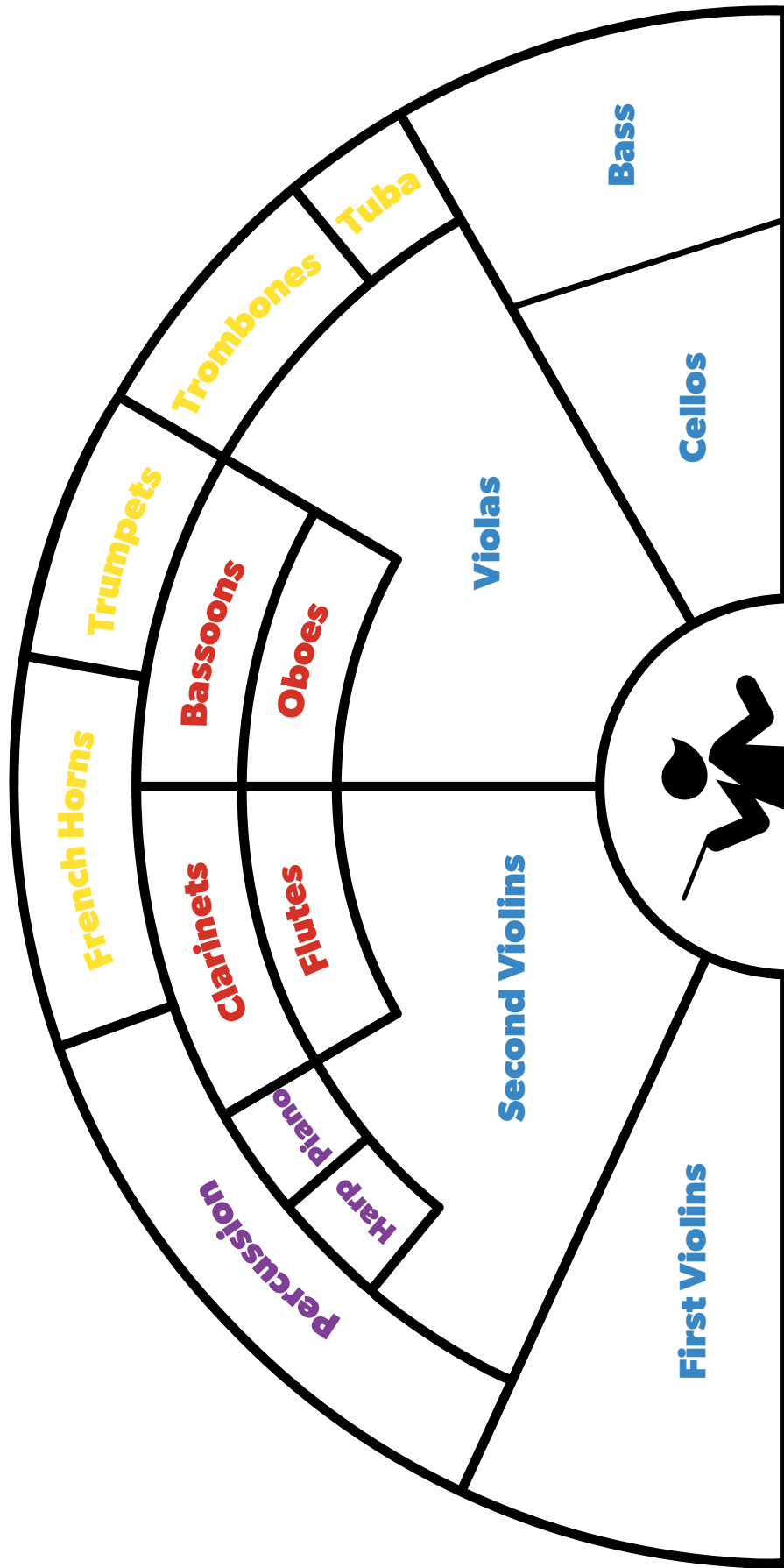
Another regular type of piece is a "concerto," which features one musician at the front of the stage. These often have very fast, difficult passages for the soloists to show off their stuff.

Finally, there is often a "symphony" on the second half of the program. These are generally multiple movements — the movements are meant to take listeners on an emotional journey.

There are many other kinds of pieces, and every program is different.



# Classical Orchestra Seating Chart



- String
- Brass
- Woodwind
- Percussion
- 🎵 Conductor

**CONCERT REPERTOIRE****Gioachino Rossini**

(Excerpt)

Barber of Seville Overture Excerpt

**Pyotr Ilyich Tchaikovsky**

(Excerpt)

Movement II Excerpt from Symphony No.6

**Maurice Ravel**

Movement II from Mother Goose Suite

**Samuel Coleridge- Taylor**

IV. Willow Song from Othello

**Edvard Grieg**

Hall of the Mountain King

**Antonin Dvořák**

(Excerpt)

Symphony No. 9 Scherzo

**Pyotr Ilyich Tchaikovsky**

(Excerpt)

Movement III Excerpt from Symphony No.6

## MEET THE COMPOSERS

### **Gioachino Rossini**

1792-1868



Italian composer of the Romantic period, Giachino Rossini is best remembered for his comedic operas. Rossini provided a new and improved vision of traditional opera with musical elements such as bel canto (beautiful singing) singing, a singing style showcasing performer's versatility through embellishments. Initially, his opera *The Barber of Seville* (1816) was poorly received, yet over time became one of the most popular operas in the history of Western music. *The Barber of Seville* follows a barber, Figaro, as he assists Count Almaviva in pursuing a beautiful woman, Rosina, the rich ward of Dr. Bartolo who plans to marry her himself.

### **Pyotr Ilyich Tchaikovsky**

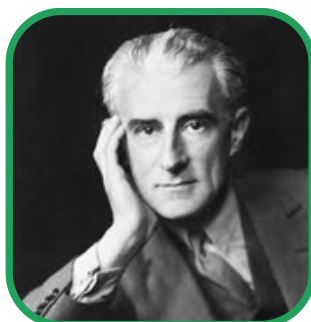
1840-1893



Pyotr Ilyich Tchaikovsky was a Russian composer of the Romantic period. He is best remembered for his compositions for the ballets of *Swan Lake* (1877) and *The Nutcracker* (1892). The first Russian composer to gain international recognition, Tchaikovsky's compositions are extremely innovative and carry strong emotive and colorful musical elements. Known for his ability to create unique and tuneful melodies, his compositional style combines musical styles and practices of Russia with Western music traditions.

### **Maurice Ravel**

1875-1937



Maurice Ravel is one of the most celebrated French composers of the twentieth century. Ravel was considered an "impressionist," composing music that focused less on expressing emotion and more on creating mood and atmosphere. Ravel was known to be curious about music of other cultures and nationalities, which heavily influenced his compositions. With this, he set the standard of openness and appreciation of different kinds of music.

**Samuel Coleridge-Taylor**

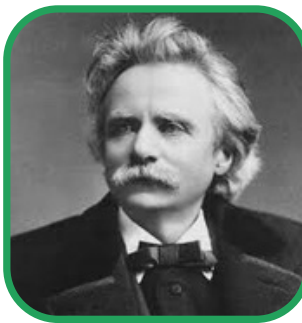
1875-1912



Samuel Coleridge-Taylor was one of the most progressive composers of the 20th century. Conscious of his African descent, Taylor's classical compositions were heavily influenced by African-American music, to which he is often described as an "Afro-English" composer. Coleridge-Taylor was a prolific musician and is remembered for popularizing traditional African music throughout the classical world.

**Edvard Grieg**

1843-1907



Edvard Grieg is considered Norway's greatest composer. Grieg learned how to play the piano at 6 years old and began composing when he was 9. A lot of Grieg's compositions were inspired by Norway's beautiful mountains and folk music which gave the country its own identity. "In the Hall of the Mountain King" is one of Grieg's best known works.

**Antonin Dvořák**

1841-1904



Antonin Dvořák is best remembered for his orchestral work "Symphony No. 9 in E Minor: From the New World." Although a Czech composer, this piece, and most of Dvořák's compositions, had a massive impact on establishing and developing "American" music. While at the National Conservatory of Music in New York, Dvořák grew an immense passion for American folk music, such as African-American spirituals and Native American songs. He acknowledged and advocated for the value of these styles due to their foundational role in American music.



## MEET THE CONDUCTOR

### TAICHI FUKUMURA

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#### FWSO Assistant Conductor

Born in Tokyo, Taichi Fukumura was raised in Boston and began music studies at age three on the violin. Professionally trained on the instrument, he received a Bachelor of Music in violin performance from Boston University, studying with Peter Zazofsky. Fukumura received both his Master of Music and Doctor of Musical Arts degrees in orchestral conducting from Northwestern University, studying with Victor Yampolsky.

#### What Musical Instrument do you play?

I play violin! And also make some noise at the piano to study the music I conduct.

#### What does your preparation process look like?

It takes hours, days, and weeks of studying for every piece I conduct. The process includes marking up my score with colors and pencils, rulers, and lots of erasers - and singing, tapping, clapping, whatever it takes to internalize the music! I also research to learn about the context of the music, like reading about the composer and the history of the time and place they are from.

#### What/who inspired you to become a conductor?

I grew up playing the violin and loved making music and meeting friends in the youth orchestras. My teachers - the conductors and coaches - were my first inspirations. They got me thinking about that magical moment when music brings all of us together. So many different instruments in the orchestra combine to create this amazing music, and it's such an exciting process!

#### Do you have any pre-show rituals?

I try not to have any specific rituals because you never know what situation you'll be in! But whenever I can, I try to find a quiet space to focus. There are a lot of moving parts in every show, and it helps to go in with a clear mind!

#### What advice would you give to students who aspire to become a conductor?

Be curious! Expose yourself to as much as you can, whether it is going to concerts and watching performances online, reading as much music as you can, or talking with other people who make music to learn what they do! Find the courage to ask questions - and keep asking!

## OVERVIEW

Exploring Sound project weaves the exploration of sound through music and science for early elementary students in kindergarten through second grades. The lessons are divided into four main concepts of sound including vibrations (sound waves), tone (pitch), dynamics (volume) and tempo (speed). Using the 5 E Model of Instruction (Engage, Explore, Explain, Extend, and Evaluate), students will discover concepts in music and science as it relates to sound. The concepts learned will directly support TEKS (Texas Essential Knowledge and Skills) in both music and science.

## CONCEPTS

### Vibrations (sound waves):

Sound is produced when particles are disrupted by vibration sending sound waves through the air. The waves then enter the human ear and cause the ear drum to vibrate which sends a signal to the brain to process the sound. The science of sound causes us to use several of our senses to process the sound. We can feel a vibration in our throats when we hum or sing, we can also feel vibration through sound sources such as musical instruments and digital sound amplifiers. Vibration can also be seen when particles that are forced to vibrate touch other particles spreading the sound waves.

### Tone (pitch):

The speed of the sound wave produced by vibration determines the high pitch or low pitch of the sound. Sound waves that are slow produce a low pitch whereas sound waves that are fast produce high pitches.

### Dynamics (volume):

Sound waves that have a higher amplitude, produce a louder sound whereas sound waves with a smaller amplitude produce a quiet sound. The bigger the vibrations, the greater the energy, the louder the sound.

### Tempo (speed):

When the beats of sound per minute (BPM) increase in music, the music becomes faster. Likewise if the BPM decrease, the tempo of the music slows down. The tempo of the music can significantly affect the mood or expression of the piece.

## TEACHER TIPS

The study guide includes a materials list and video links to examples of sound science as well as recordings of all the musical selections. **All text or boxes in red are linked. You can also find those links in the resource page at the end.**

Each lesson is geared to be extended over two 30 minute lessons.

Each advancing lesson is scaffolded from previous grade levels.

## Study Guide Kindergarten

### MUSIC TEKS

The Student describes and analyzes musical sound and is expected to:

- 1.C Identify timbre of instrument families
- 1.D Identify same and different in beat/rhythm, high/low, loud/soft, fast/slow and simple patterns in musical performances

The student performs a varied repertoire of developmentally appropriate music in informal or formal settings and is expected to:

- 2.C Move alone or with others to a varied repertoire of music using gross and fine locomotor and non-locomotor movement
- 2.D Perform simple partwork including beat versus rhythm
- 2.E Perform music using louder/softer and faster/slower

The student examines music in relation to history and cultures. The student is expected to:

- 3.B Identify simple interdisciplinary concepts related to music.

The student listens to, responds to, and evaluates music and musical performances and the student is expected to:

- 4.A Identify and demonstrate appropriate audience behavior during live or recorded performances;
- 4.C Compare same/different in beat/rhythm, higher/lower, louder/softer, faster/slower, and simple patterns in musical performances.

**SCIENCE TEKS**

- K.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices.
- K.1 C. Demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal
- K.2 Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations.
- K.2 A. Ask questions about organisms, objects, and events observed in the natural world
- K.2 E. Communicate observations with others about simple descriptive investigations
- K.3 Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving.
- K.3 B. Make predictions based on observable patterns in nature such as the shapes of leaves
- K.6 Force, motion, and energy. The student knows that energy, force, and motion are related and are a part of their everyday life.
- K.6 A. Use the five senses to explore different forms of energy such as light, heat, and sound
- K.6 C. Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside.
- K.6 D. Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow

**VIBRATION AND PITCH****Materials Needed**

- Book: Sounds All Around, The Science of How Sound Works by Susan Hughes
- Plastic or wooden rulers
- Plastic and metal containers- various sizes (cleaned and opened with a safe-edge type can opener for smooth edges)
- Large balloons
- Rhythm sticks, drum sticks, unsharpened pencils, wide craft sticks
- Classroom instruments: Drums, triangle, bell, xylophone, guitar, boomwhackers
- Rice

**What is Sound?**

Vibrations that travel through the air or another medium that can be heard when they reach the ear of a human or animal.

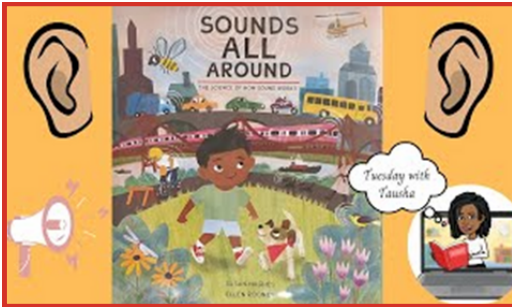
**What We Will Learn**

- Ask questions and communicate findings of scientific investigation
- Identify the timbre of instrument families
- Use the five senses to explore various types of energy including sound
- Make predictions based on observable patterns in music and nature
- Demonstrate ways to recycle paper, plastic and metal by making a musical instrument that demonstrates vibration

Students will use the 5E Science Model: Engage, Explore, Explain, Elaborate and Evaluate

**SOUNDS ALL AROUND**

**Let's Read Along...**



**Take a Sound Walk**

What words in the story describe the sounds you hear?

What are other words you can use to describe sound you hear?

Take a walk outside. Listen for all the sounds nature makes. Talk to your friend about the sounds you hear.

**ENGAGE**



What did you hear?

What did you see?

What is happening in the video?

Can you identify the instrument?

**EXPLORE**

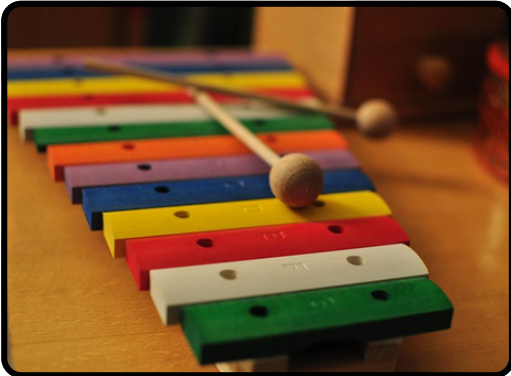
**Ruler Experiment**

Use a ruler to demonstrate vibration by putting it on the edge of the desk such that 4 inches hang off. Holding it secure with one hand, use the other hand to strike the ruler demonstrating the vibration.

Students experiment with rulers and describe the sound they hear when they shorten the length of the ruler.

Students predict what will happen and communicate to their partners their findings.

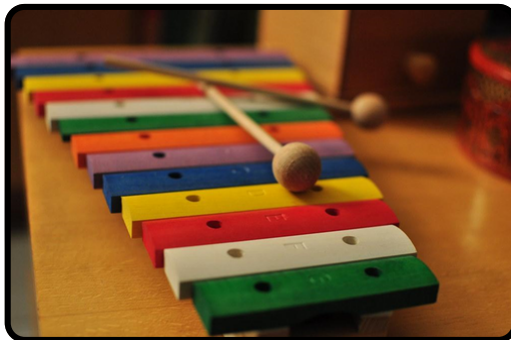


**EXPLAIN****Classroom Instruments**

Use classroom instruments in various sizes to relate to the findings of the ruler experiment.

Students will predict what type of sound will happen with small instruments versus the large ones of the same type.

Students will discover how size of the instrument (sound source) can affect the pitch.

**ELABORATE****Hearing, Seeing, and Feeling Vibration**

Using a metal sound source (guitar strings or triangle), students will physically feel the vibration by muting the sound with a gentle touch following the striking of the sound source.

Describe what happens to the sound when you touch the vibration and what it feels like.

Put a few sprinkles of rice on a drum head. Watch them dance when the drum head is struck. Cause the drum head to vibrate by speaking or singing loudly next to the drum head causing the rice to once again bounce.

**EVALUATE****Make a Drum Using Recycled Materials:**

- 1) Precut the stem off the balloons
- 2) Students stretch balloons over the container
- 3) Experiment with various sticks for striking
- 4) Sprinkle rice on the top of the drum
- 5) Experiment with ways to make the rice bounce
- 6) Determine what action is required to cause the vibration to stop
- 7) Describe the pitch of their drum in comparison to a classmate's drum



**TEMPO AND DYNAMICS****Materials Needed:**

- Book: Whoosh and Chug by Sebastien Braun
- Plastic and metal containers- various sizes (cleaned and opened with a safe-edge type can opener for smooth edges)
- Rhythm sticks, drum sticks
- Classroom instruments: various non-pitched percussion instruments
- Rice, beans, beads, rocks, coins

**How does sound travel?**

Sound travels as waves of energy and the waves transmit energy by changing the motion of the particles.

**How can I hear sound?**

Sound waves travel through the ear canal and vibrate the eardrum and the bones inside the ear which signal to the brain to process the sound.

**What we will Learn**

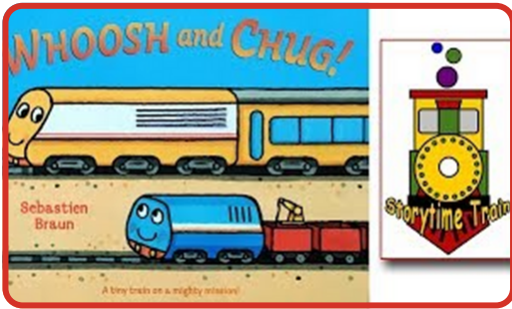
- Ask questions and communicate findings of scientific investigation
- Identify the timbre of instrument families
- Use the five senses to explore various types of energy including sound
- Make predictions based on observable patterns in music and nature
- Demonstrate ways to recycle paper, plastic and metal by making a musical instrument that demonstrates various tempo and dynamics when played

Students will use the 5E Science Model: Engage, Explore, Explain, Elaborate and Evaluate



**SOUNDS ALL AROUND**

**Let's Read Along...**



**Take a Sound Walk**

What words in the story describe the sounds you hear?

What are other words you can use to describe sound you hear?

Take a walk outside. Listen for all the sounds nature makes. Talk to your friend about the sounds you hear.

**ENGAGE**



Do you know what tempo means?

Watch the video and move to different speeds.

Practice moving in various tempos as directed by your teacher.

Can you identify the instruments you see and hear in the video

**EXPLORE**

**Movement**

Use the video provided or your own musical excerpts that exemplify various tempos.

You may use scarves to enhance their experience of moving through shared space safely to the various tempos.

Have the students identify tempos that are slow and fast by indicating with safe movements of choice.

Kindergartners also love to learn words in other language. Its never too early to introduce the Italian words for various tempos.



**EXPLAIN**

**Classroom Instruments**



Use classroom rhythm instruments to play along with the selections listed in the Extension portion of this lesson.

Practice keeping a steady beat on the instrument and students will identify the tempo of the song by changing their speed when the music changes.

Discuss how it requires more physical energy to play a faster beat. This video demonstrates physical energy in relationship to tempo.

**ELABORATE**

**DYNAMICS**



Students will be introduced to the Italian terms associated with loud and soft.

You may once again use movement assess student understanding the concept of dynamics.

Scarves may be used to enhance their movement experience.

Students will discuss how it may require more physical energy to play or sing louder and softer.

Experiment with classroom rhythm instruments by playing along with the music and the dynamic level that is demonstrated.

**EVALUATE**

**Make a Shaker Using Recycled Materials:**

- 1) Use a plastic or metal bottle or container with a secure lid
- 2) Make sure its clean and dry
- 3) Experiment with various items for filler; rice, beads, beans, coins, rocks, etc.
- 4) Experiment with different amounts of filler
- 5) Which material caused a louder sound?
- 6) Can you play the instrument at various tempos?



**EXTENSION**

**What instruments do you hear? How are they making sound?**

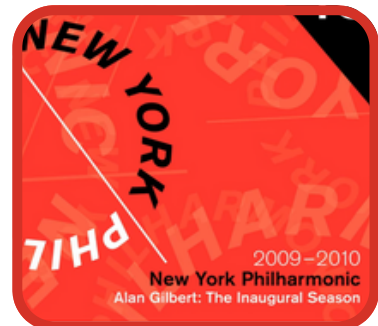
The Barber of Seville  
Overture by Rossini



Symphony No. 6, Second  
Movement by Tchaikovsky  
(17:45-25:50)



Mother Goose Suite, Second  
Movement by Ravel  
(Start at 4:45)



Othello, Op. 79- IV. The Willow  
Song by Coleridge-Taylor



In the Hall of the Mountain King  
by Grieg



Symphony No. 9, Scherzo by  
Dvorak (Start at 5:03)



Symphony No. 6, Third  
Movement by Tchaikovsky  
(25:54 to 34:14)



## Study Guide First Grade

### MUSIC TEKS

The student describes and analyzes musical sound, reproduces music notation and is expected to:

- 1.B Identify visually and aurally the instrument families
- 1.C Use basic music terminology in describing changes in tempo, including allegro/largo, and dynamics, including forte/piano;

The student performs a varied repertoire of developmentally appropriate music in informal or formal settings and is expected to:

- 3.C Move alone or with others to a varied repertoire of music using gross and fine locomotor and non-locomotor movement
- 3.D Perform simple part work, including beat versus rhythm, rhythmic ostinato, and vocal exploration; and
- 3.E Perform music using tempo, including allegro/largo, and dynamics, including forte/piano

The student examines music in relation to history and cultures. The student is expected to:

- 5.B Identify steady beat in short musical excerpts from various periods or times in history and diverse cultures; and
- 5.C Identify simple interdisciplinary concepts relating to music

The student listens to, responds to, and evaluates music and musical performances and the student is expected to:

- 6.A Identify and demonstrate appropriate audience behavior during live or recorded performances;
- 6.D Respond verbally or through movement to short musical examples

**SCIENCE TEKS**

- 1.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices.
- 1.1B Identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals
- 1.2 Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations.
  - 1.2.A. Ask questions about organisms, objects, and events observed in the natural world
  - 1.2.E. Communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations
- 1.3 Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving.
  - 1.3.A. Identify and explain a problem and propose a solution
  - 1.3.B. Make predictions bases on observable patterns
- 1.6 Force, motion, and energy. The student knows that energy, force, and motion are related and are a part of their everyday life.
  - 1.6.A. Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.
  - 1.6.C. Demonstrate and record the ways that objects can move such as in a straight line, zig zag, up and down, back and forth, round and round, and fast and slow

**VIBRATION AND PITCH****Materials Needed**

- Book: Sounds All Around, The Science of How Sound Works by Susan Hughes
- Notebook to record notes on investigations
- Cardboard box (tissue box or similar) with precut hole on top, cups, plastic bowls
- Rubber bands (various) big enough to stretch around the box, cups, plastic bowls
- Pencils or crayons (to be used in elevating the rubber band- 2 per box)
- 8 glass bottles, jars or glasses (same size)
- Pitcher of water
- Metal striker
- Classroom instruments: Drums, triangle, bell, xylophone, guitar, boom whackers

**What is Sound?**

Vibrations that travel through the air or another medium that can be heard when they reach the ear of a human or animal.

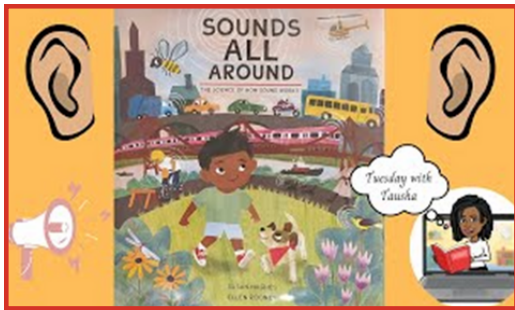
**What We Will Learn**

- Ask questions and communicate findings of scientific investigation
- Identify the timbre of instrument families
- Use the five senses to explore various types of energy including sound
- Make predictions based on observable patterns in music and nature
- Demonstrate ways to recycle paper, plastic and metal by making a musical instrument that demonstrates vibration
- Understand how sound is important in everyday life

Students will use the 5E Science Model: Engage, Explore, Explain, Elaborate and Evaluate

**SOUNDS ALL AROUND**

**Let's Read Along...**



**Take a Sound Walk**

What words in the story describe the sounds you hear?

What are other words you can use to describe sound you hear?

Take a walk outside. Listen for all the sounds nature makes. Talk to your friend about the sounds you hear.

**ENGAGE**



What did you hear?

What did you see?

What is happening in the video?

Can you identify the instrument?

**EXPLORE**

**Ruler Experiment**

Students identify characteristics of the materials: cardboard versus plastic, thickness and texture of rubberband.

Stretch rubberband across base (plastic cup or box) and describe the sound they hear when they pluck the rubberband.

Record findings in their sound notebook.

Watch slo-mo video of guitar strings and describe the difference in vibration and how that compares to the pitch of the string.



**EXPLAIN**



**Classroom Instruments**

Use classroom instruments in various sizes to relate to the findings of the ruler experiment.

Students will predict what type of sound will happen with small instruments versus the large ones of the same type.

Use boomwhackers to play along demonstrating high and low pitches.

Identify the high and low pitches on a xylophone based on their size and sound.

**ELABORATE**

**How size can affect pitch:**



Create a water xylophone. Use 5-8 jars/glasses/bottles (same size)

Show how they make the same sound before adding any liquid

Fill each container with increasing amounts of water (use food coloring for affect if desired)

Play each container with a metal striker (spoon)

Students describe the sound they are hearing.

Demonstrate how you can play a familiar tune on the water xylophone.

**EVALUATE**

**Make a Guitar Recycled Materials:**

- 1) Precut the holes in the cardboard box (or use tissue box)
- 2) Students stretch rubberbands over the container
- 3) Experiment with various rubberbands
- 4) Describe the pitch of their guitar in comparison to a classmate's guitar





**TEMPO AND DYNAMICS****Materials Needed:**

- Book: Tiger Tempo by Vicky Weber
- Heavy duty paper plates
- Hole punch
- Rhythm sticks, drum sticks, unsharpened pencils, wide craft sticks
- Classroom instruments: various non-pitched percussion instruments
- Straws, pasta, beans, beads
- Jingle Bells
- Ribbon
- Decorations: stickers, markers, crayons

**How does sound travel?**

Sound travels as waves of energy and the waves transmit energy by changing the motion of the particles.

**How can I hear sound?**

Sound waves travel through the ear canal and vibrate the eardrum and the bones inside the ear which signal to the brain to process the sound.

**What we will Learn**

- Ask questions and communicate findings of scientific investigation
- Identify the timbre of instrument families
- Use the five senses to explore various types of energy including sound
- Make predictions based on observable patterns in music and nature
- Demonstrate ways to recycle paper, plastic and metal by making a musical instrument that demonstrates various tempo and dynamics when played

Students will use the 5E Science Model: Engage, Explore, Explain, Elaborate and Evaluate

**SOUNDS ALL AROUND**

**Let's Read Along...**



**Take a Sound Walk**

Keep the beat on your laps while listening to the story

What words in the story describe the sounds you hear?

What are other words you can use to describe sound you hear?

Take a walk outside. Listen for all the sounds nature makes. Talk to your friend about the sounds you hear.

**ENGAGE**



Do you know what tempo means?

Watch the video and move to different speeds.

Practice moving in various tempos as directed by your teacher.

Can you identify the instruments you see and hear in the video

**EXPLORE**

**Movement**

Use the video provided or your own musical excerpts that exemplify various tempos.

You may use scarves to enhance their experience of moving through shared space safely to the various tempos.

Have the students identify tempos that are slow and fast by indicating with safe movements of choice.



**EXPLAIN****Classroom Instruments**

Use classroom rhythm instruments to play along with the selections listed in the Extension portion of this lesson.

Practice keeping a steady beat on the instrument and students will identify the tempo of the song by changing their speed when the music changes.

Discuss how it requires more physical energy to play a faster beat. This video demonstrates physical energy in relationship to tempo.

**ELABORATE****DYNAMICS**

Students will be introduced to the Italian terms associated with loud and soft.

You may once again use movement assess student understanding the concept of dynamics.

Scarves may be used to enhance their movement experience.

Students will discuss how it may require more physical energy to play or sing louder and softer.

Experiment with classroom rhythm instruments by playing along with the music and the dynamic level that is demonstrated.

**EVALUATE****Make a Tambourine Using Recycled Materials:**

- 1) Use two paper plates (heavy duty)
- 2) Punch holes equidistant around each plate
- 3) Experiment with various items for filler: beads, beans, straws, pasta, etc.
- 4) Experiment with different amounts of filler
- 5) Thread jingle bells onto the ribbon then secure the two plates together by weaving the ribbon in and out of the holes.
- 6) Which material caused a louder sound?
- 7) Can you play the instrument at various tempos?



**EXTENSION**

**What instruments do you hear? How are they making sound?**

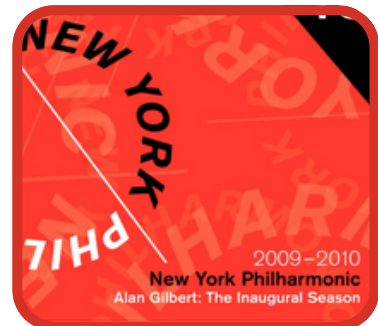
The Barber of Seville  
Overture by Rossini



Symphony No. 6, Second  
Movement by Tchaikovsky  
(17:45-25:50)



Mother Goose Suite, Second  
Movement by Ravel  
(Start at 4:45)



Othello, Op. 79- IV. The Willow  
Song by Coleridge-Taylor



In the Hall of the Mountain King  
by Grieg



Symphony No. 9, Scherzo by  
Dvorak (Start at 5:03)



Symphony No. 6, Third  
Movement by Tchaikovsky  
(25:54 to 34:14)



## Study Guide Second Grade

### MUSIC TEKS

**The student describes and analyzes musical sound, reproduces music notation and is expected to:**

- 1.B Identify visually and aurally
- 1.C Use known music terminology to explain musical examples of tempo, including presto, moderato, and andante, and dynamics, including fortissimo and pianissimo;

**The student performs a varied repertoire of developmentally appropriate music in informal or formal settings and is expected to:**

- 3.C Move alone or with others to a varied repertoire of music using gross and fine locomotor and non-locomotor movement
- 3.D Perform simple part work, rhythmic ostinato, and vocal exploration such as singing, speaking, and chanting; and
- 3.E Perform music using tempo, including presto, moderato, and andante, and dynamics, including fortissimo and pianissimo.

**The student examines music in relation to history and cultures. The student is expected to:**

- 5.B Examine short musical excerpts from various periods or times in history and diverse and local cultures
- 5.C Identify simple interdisciplinary concepts relating to music

**The student listens to, responds to, and evaluates music and musical performances and the student is expected to:**

- 6.A Practice appropriate audience behavior during live or recorded performances;
- 6.B Recognize known rhythmic and melodic elements in simple aural examples using known terminology;
- 6.C Distinguish between rhythms, higher/lower pitches, louder/softer dynamics, faster/slower tempos, and simple patterns in musical performances; and
- 6.D Respond verbally or through movement to short musical examples.

**SCIENCE TEKS**

- 2.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices.
- 2.1C Identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal
- 2.2 Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations.
  - 2.2 A. Ask questions about organisms, objects, and events during observations and investigations
  - 2.2 E. Communicate observations and justify explanations using student-generated data from simple descriptive investigations
- 2.3 Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving.
  - 2.3.B Make predictions bases on observable patterns
- 2.6 Force, motion, and energy. The student knows that energy, force, and motion are related and are a part of their everyday life.
  - 2.6.A. A investigate the effects on a an object by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter

**VIBRATION AND PITCH****Materials Needed**

- Book: Sounds All Around, The Science of How Sound Works by Susan Hughes
- Notebook to record notes on investigations
- Cardboard box (tissue box or similar) with precut hole on top, cups, plastic bowls
- Rubber bands (various) big enough to stretch around the box, cups, plastic bowls
- Pencils or crayons (to be used in elevating the rubber band- 2 per box)
- 8 glass bottles, jars or glasses (same size)
- Pitcher of water
- Metal striker
- Classroom instruments: Drums, triangle, bell, xylophone, guitar, boomwhackers

**What is Sound?**

Vibrations that travel through the air or another medium that can be heard when they reach the ear of a human or animal.

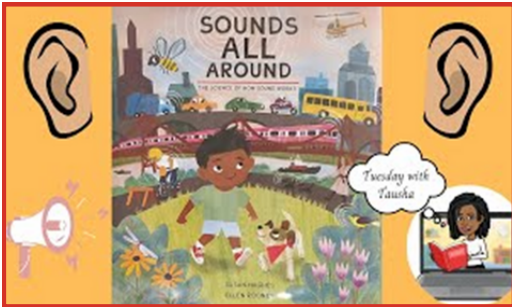
**What We Will Learn**

- Ask questions and communicate findings of scientific investigation
- Identify the timbre of instrument families
- Use the five senses to explore various types of energy including sound
- Make predictions based on observable patterns in music and nature
- Demonstrate ways to recycle paper, plastic and metal by making a musical instrument that demonstrates vibration
- Understand how sound is important in everyday life

Students will use the 5E Science Model: Engage, Explore, Explain, Elaborate and Evaluate

**SOUNDS ALL AROUND**

**Let's Read Along...**



**Take a Sound Walk**

What words in the story describe the sounds you hear?

What are other words you can use to describe sound you hear?

Take a walk outside. Listen for all the sounds nature makes. Create a notebook of words that describe sound.

Make comparisons of sounds that occur in nature versus man-made sounds.

**ENGAGE**



What did you hear?

What did you see?

What is happening in the video?

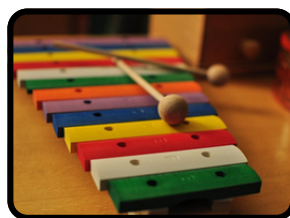
Can you identify the instrument?

**EXPLORE**

**Pitch Experiment**

Create three centers for pitch exploration:  
boomwhackers, xylophones and water xylophones (pitches labeled)

[Name that Tune](#) worksheet is a fun way for students to play familiar tunes on pitched instruments





**EXPLAIN**

**Sound Story:**



Students will retell a familiar story using found sounds in the music classroom.

You may do this as a class or in small groups for an extended project.

Encourage students to use non-traditional sound sources but also allow students to incorporate various rhythm instruments.

[Goldilocks and the Three Bears poem](#)

**ELABORATE**

**Make a Panflute or Kazoo Using Recycled Materials:**



- 1) Students plan which instrument they will make and gather materials
- 2) Students follow directions to make their instruments
- 3) Describe the pitch of their instrument in comparison to a classmate's instrument



**EVALUATE**

**Use Homemade Instruments:**

In small groups, students will collaborate to retell a familiar story using sound effects and incorporating their homemade instruments.



**TEMPO AND DYNAMICS****Materials Needed:**

- Book: Tiger Tempo by Vicky Weber
- Heavy duty paper plates
- Hole punch
- Rhythm sticks, drum sticks, unsharpened pencils, wide craft sticks
- Classroom instruments: various non-pitched percussion instruments
- Straws, pasta, beans, beads
- Jingle Bells
- Ribbon
- Decorations: stickers, markers, crayons

**How does sound travel?**

Sound travels as waves of energy and the waves transmit energy by changing the motion of the particles.

**How can I hear sound?**

Sound waves travel through the ear canal and vibrate the eardrum and the bones inside the ear which signal to the brain to process the sound.

**What we will Learn**

- Ask questions and communicate findings of scientific investigation
- Identify the timbre of instrument families
- Use the five senses to explore various types of energy including sound
- Make predictions based on observable patterns in music and nature
- Demonstrate ways to recycle paper, plastic and metal by making a musical instrument that demonstrates various tempo and dynamics when played

Students will use the 5E Science Model: Engage, Explore, Explain, Elaborate and Evaluate

**SOUNDS ALL AROUND**



Keep the beat on your laps while listening to the musical examples.

What words in the story describe the sounds you hear?

What are other words you can use to describe sound you hear?

Take a walk outside. Listen for all the sounds nature makes. Talk to your friend about the sounds you hear.

**ENGAGE**

Do you know what tempo means?

Watch the video and move to different speeds.

Practice moving in various tempos as directed by your teacher.

Can you identify the instruments you see and hear in the video



**EXPLORE**

**Movement**

Use the video provided or your own musical excerpts that exemplify various tempos.

You may use scarves to enhance their experience of moving through shared space safely to the various tempos.

Have the students identify tempos that are slow and fast by indicating with safe movements of choice.



## EXPLAIN

## Classroom Instruments



Use classroom rhythm instruments to play along with the selections listed in the Extension portion of this lesson.

Practice keeping a steady beat on the instrument and students will identify the tempo of the song by changing their speed when the music changes.

Discuss how it requires more physical energy to play a faster beat. This video demonstrates physical energy in relationship to tempo.

## ELABORATE

## DYNAMICS



Students will be introduced to the Italian terms associated with loud and soft.

You may once again use movement assess student understanding the concept of dynamics.

Scarves may be used to enhance their movement experience.

Students will discuss how it may require more physical energy to play or sing louder and softer.

Experiment with classroom rhythm instruments by playing along with the music and the dynamic level that is demonstrated.



## EVALUATE

## Make a Rainstick Using Recycled Materials:

- 1) Use heavy duty cardboard tube
- 2) Consider making them as a class or in small groups due to the level of adult assistance needed
- 3) Make dots in diagonal around the tube
- 4) Insert nails the size of the tube where the dots are forming a web on the inside
- 5) Experiment with various items for filler: beads, beans, straws, pasta, etc.
- 6) Experiment with various items for filler
- 7) Which material caused a louder sound?
- 8) Can you play the instrument at various tempos?



**EXTENSION**

**What instruments do you hear? How are they making sound?**

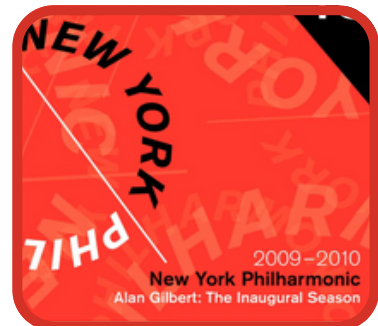
The Barber of Seville  
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Symphony No. 6, Second  
Movement by Tchaikovsky  
(17:45-25:50)



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Othello, Op. 79- IV. The Willow  
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Symphony No. 9, Scherzo by  
Dvorak (Start at 5:03)



Symphony No. 6, Third  
Movement by Tchaikovsky  
(25:54 to 34:14)



## RESOURCES

### REFERENCES

#### PBS Learning Media:

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

Teach Engineering: [https://www.teachengineering.org/curricularunits/view/cub\\_sound\\_curricularunit](https://www.teachengineering.org/curricularunits/view/cub_sound_curricularunit)

Science Kids at Home: [http://www.sciencekidsathome.com/science\\_topics/what\\_is\\_sound.html#more](http://www.sciencekidsathome.com/science_topics/what_is_sound.html#more)

Edutopia: <https://www.edutopia.org/article/how-use-5e-model-your-science-classroom>

Stay at Home Science: <https://stayathomescience.com/2017/06/28/sound-waves-diy-musical-instruments/>

### WEBSITES FOR STUDENTS

San Francisco Orchestra: <https://www.sfsymphony.org/EducationCommunity/Music-Connects-Kids>

Dallas Symphony Orchestra: <https://www.dallassymphony.org/community-education/dso-kids/>

New York Philharmonic: <https://nyphil.org/education/digital-resources>

London Symphony Orchestra: <https://play.lso.co.uk/>

### KINDERGARTEN

Sound All Around: <https://www.youtube.com/watch?v=R4UZ2T5bwj4>

Engage (Visualizing vibrations on singing strings): <https://www.youtube.com/watch?v=ttgLyWFINJI>

Explore (Length of rubber band determines pitch): <https://www.youtube.com/watch?v=AQJw95-H9mM>

Whoosh and Chug: <https://www.youtube.com/watch?v=T-b-XkJWETY>

Engage (Tempo- Mr. Greg's Musical Madness): <https://www.youtube.com/watch?v=dYgBHpUfQnw>

Explore (Movement-Tempo): <https://www.youtube.com/watch?v=YaBe5dxomLM>

Explain (Presto Largo): <https://www.youtube.com/watch?v=iN5Jv9s-z80>

Elaborate (Dynamics- Forte Piano): <https://www.youtube.com/watch?v=IUYEvCly8Fo>

Evaluate (DIY Plastic Bottle Shaker Instrument): <https://www.youtube.com/watch?v=fZjywurvgEE>

Extension (Repertoire youtube playlist): <https://www.youtube.com/watch?v=zFVytDB2MI&list=PLIVADdu5K39es0sVtMkRj3Q3UNRP2iGt2>

### FIRST GRADE

Sound All Around: <https://www.youtube.com/watch?v=R4UZ2T5bwj4>

Engage (Sugar Plum Fairy by Tchaikovsky- GlassDuo): [https://www.youtube.com/watch?v=QdoTdG\\_VNV4](https://www.youtube.com/watch?v=QdoTdG_VNV4)

Explore (Ruler Experiment- Guitar strings vibrating): <https://www.youtube.com/watch?v=XOCCGb5ZGEV8>

Sound Walk (Tiger Tempo Book): <https://www.youtube.com/watch?v=fSgHsDanelw>

Engage (Tempo- Mr. Greg's Musical Madness): <https://www.youtube.com/watch?v=dYgBHpUfQnw>

Explore (Movement- Tempo): <https://www.youtube.com/watch?v=YaBe5dxomLM>

Explain (Presto Largo): <https://www.youtube.com/watch?v=iN5Jv9s-z80>

Elaborate (Forte Piano): <https://www.youtube.com/watch?v=IUYEvCly8Fo>

Evaluate (DIY Tambourine): <https://www.youtube.com/watch?v=ITKCp64OWas>

Extension (Repertoire youtube playlist): <https://www.youtube.com/watch?v=zFVytDB2MI&list=PLIVADdu5K39es0sVtMkRj3Q3UNRP2iGt2>

**RESOURCES****SECOND GRADE**

**Sound All Around:** <https://www.youtube.com/watch?v=R4UZ2T5bwj4>

**Engage (The Sound of Silence):** <https://www.youtube.com/watch?v=444JSd9tMkc>

**Explain (Goldilocks and the three bears poem):** <https://www.youtube.com/watch?v=T-b-XkJWETY>

**Sounds All Around (Expressive Elements: Tempo):** <https://www.youtube.com/watch?v=xgql8mmWxul>

**Engage (Music show presto is fast, largo is slow):** <https://www.youtube.com/watch?v=OrthflctNKK>

**Explore (Tempo):** <https://www.youtube.com/watch?v=YaBe5dxomLM>

**Explain (Presto Largo):** <https://www.youtube.com/watch?v=iN5Jv9s-z80>

**Elaborate (Forte Piano):** <https://www.youtube.com/watch?v=fZjywurvgEE>

**Elaborate ( Quiet and Loud):** <https://www.youtube.com/watch?v=Mct7v9D2VqY>

**Evaluate (How to make a rainstick):** <https://www.youtube.com/watch?v=hS4K4Ahy5o>

**Extension (Repertoire youtube playlist):** [https://www.youtube.com/watch?](https://www.youtube.com/watch?v=zFVyqtDB2MI&list=PLIVADdu5K39esOsVtMkRj3Q3UNRP2iGt2)

[v=zFVyqtDB2MI&list=PLIVADdu5K39esOsVtMkRj3Q3UNRP2iGt2](https://www.youtube.com/watch?v=zFVyqtDB2MI&list=PLIVADdu5K39esOsVtMkRj3Q3UNRP2iGt2)