

THE  
**CLEVELAND ORCHESTRA**

WHAT IS AN ORCHESTRA?



Student Learning Lab for

**The String Family**

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# PART 1:

## Let's Meet the String Family

An orchestra consists of musicians organized by instrument “family” groups. The four [instrument families](#) are: strings, woodwinds, brass and percussion. Today we are going to explore the string family!

Historians think the first [string](#) instrument originated from the caveman’s hunting bow and developed over time into early members of the string family. These early string instruments include the zither, [lyre](#), [dulcimer](#), and [lute](#). Stringed instruments used today have changed little since the 1600s – in fact some violinists play instruments that were made way back then!



The string family contains the largest number of musicians in an orchestra. Because the sound that just one string instrument makes is much quieter than, for example, the sound that one brass instrument makes, more strings are needed to play their parts and be heard with the other instrument families.

Members of the orchestral string family – from highest to lowest in the pitches that they produce – are:



Violin



Viola



Cello



Double Bass





In addition to these string instruments, the orchestra string family also includes the [harp](#)! The harp is a large instrument with strings stretched vertically inside a carved wood frame. The strings are placed from longest to shortest, which is also from lowest to highest in pitch. While the other instruments of the orchestra string family have only four strings, the harp has 47!



## How string instruments work

Vibration of the strings is key to making a sound. Plucking a string with your finger or pulling a bow across the string will start the string vibrating. The [bow](#) is made of wood, with horsehair stretched tight from one end of the stick to the other. (The hair comes from the horse's tail. It doesn't hurt the horse at all – it's just like getting a haircut!) You draw the bow back and forth, with the horsehair making contact with the string to produce the sound. You can change the pitch and create different notes by playing a different string or by placing your finger on a string to make it shorter. The shorter the string, the higher the pitch!



# PART 2: Let's Listen to *Serenade for Strings* by Peter Ilyich Tchaikovsky

To see this video you'll need to get the password from your Teacher/Parent. If they don't have the password yet, please have them go to <http://bit.ly/DigitalEducationSeries> and fill out the short form.



## Composer Fun Facts

**Peter Ilyich Tchaikovsky** was born in a small town in Russia in 1840. He showed great musical talent from an early age, [improvising](#) at the piano and even composing his first song at the age of four! Music education was not available in Russian schools at the time, so he didn't study music seriously until he enrolled at the

St. Petersburg Conservatory at the age of 21. A couple of years later he moved to Moscow where he taught music students at the Moscow conservatory, but eventually abandoned his teaching career to devote all of his time to composing music. He is considered the most popular Russian composer in history.

He composed all kinds of music, including [operas](#), [concertos](#), [symphonies](#), songs, and [ballets](#). Some of his most famous pieces were music for the ballets *Swan Lake*, *Sleeping Beauty*, and *The Nutcracker*. His music has been used in movies and to sell everything from cereal to chocolates in ads! The popularity of his music can be attributed to its open, tuneful [melodies](#), interesting [harmonies](#), and lush [orchestration](#), all of which can evoke a strong emotional response when you listen.

## About the Music

Tchaikovsky composed ***Serenade for Strings*** in 1880, when he was forty years old. He was out of town on vacation, and even though he was supposed to be taking it easy, he started getting restless and began working out the initial ideas for this piece of music.

When he began composing it, he wasn't sure if the piece was going to be a symphony or a string [quartet](#). He ended up scoring it for all of the string instruments (like a string quartet!), but with more than just four players. In fact, in the score, Tchaikovsky noted: "The larger number of players in the string orchestra, the more this will be in accordance with the author's wishes." So all of the string players in The Cleveland Orchestra perform this piece, and what a full and beautiful sound they make!

The ***Serenade for Strings*** has four distinct [movements](#), each with its own style and feeling. The movement featured in this video by The Cleveland Orchestra is the fourth movement, called the *Finale*. As the last, or final movement of the piece, it includes some of the musical themes in the previous movements. And it may make you want to move or sway when

you listen to it! In fact, ***Serenade for Strings*** was used for a ballet by the famous [choreographer](#) George Balanchine, who co-founded the New York City Ballet. This was the first piece that Balanchine choreographed when he moved to the United States (he was originally from Russia, too!) and he went on to feature other pieces of music by Tchaikovsky in many of his other ballets.

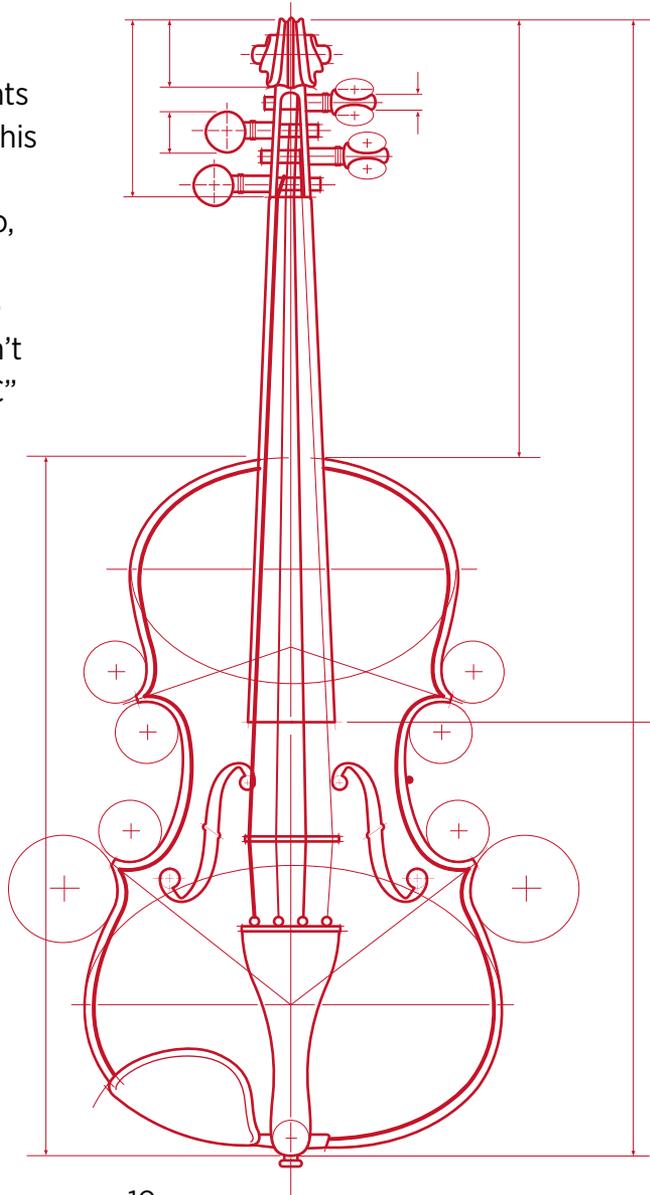


# PART 3: Music Learning Lab

## Activity #1: Music Mechanics

The distinctive shape of the string instruments in the orchestra's string family has a purpose! The rounded top and bottom, with the "C" shaped cutouts in the middle provide the instruments an "hourglass" look. This shape was developed hundreds of years ago, and because it works so well in creating the optimal sound, it hasn't changed since. The "C" shaped indentations in the middle of the string instrument, provide more room for the bow to freely move across the four strings.

The two cut-out holes on either side of the instrument are called the f-holes, because their shape is a little bit like a lower case "f."



Check out this [diagram](#) of a violin to see the other parts of a string instrument that make it work! These include:

**Scroll**

the top of the neck that is carved in a swirl – it’s mostly there for decoration!

**Tuning Pegs**

the strings are wound through these pegs and by turning them, the strings become tighter or looser which also changes the pitch

**Fingerboard**

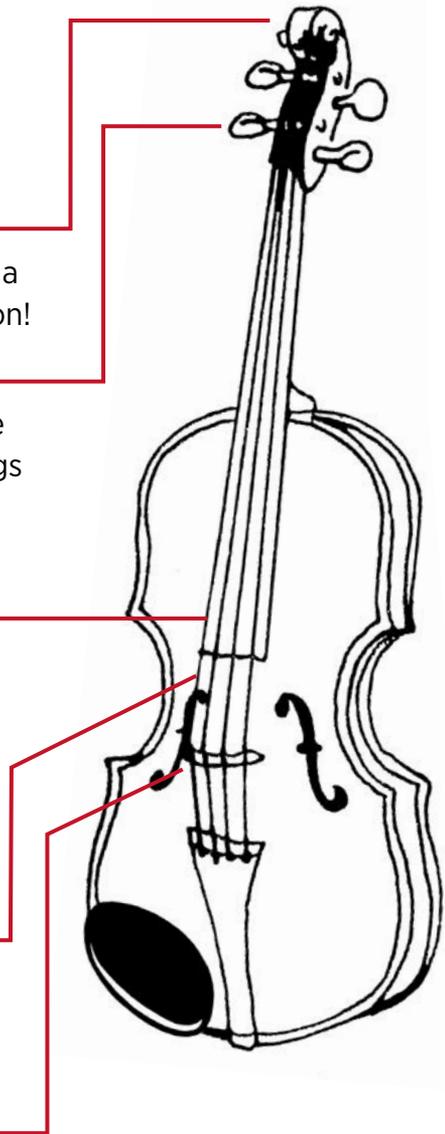
flat piece that runs along the neck of the instrument from the main body to the scroll, on which the strings are stretched and where the fingers are placed to change the pitch of the notes

**Strings**

each instrument in the orchestra string family has four strings tuned differently

**Bridge**

a hard piece of wood that the strings rest on so that they can vibrate. The bridge conducts the vibrations from the strings into the hollow body of the instrument where the sound resonates and travels back out through the “f” holes.



Print one or more of these [coloring pages](#) of the orchestra string family and create your own diagram of the instruments!

## Activity #2: Movement and Music

Music and dance are two art forms forever connected to one another. So many pieces of music were written down or [improvised](#) for dances. And in turn, dancers or choreographers create dances for music that inspires them.

Think about a song or one piece of music that you love – it can be anything! What kinds of movements would best reflect that music? Don't be shy – get up and move around! Experiment with how you move to the music, even if you're just hearing it in your head.

Tchaikovsky's ***Serenade for Strings*** features several different moods and characteristics created by changes in the music. Whether it's a fast or slow [tempo](#), loud or soft [dynamics](#), short or long notes, or changes in the [melody](#) or [harmonies](#) – a composer uses many different techniques to create distinct feelings and emotions.

Now watch this [video excerpt](#) of the beginning of ***Serenade for Strings***, with Sara Mearns, a dancer with the New York City Ballet. She narrates what she is doing and feeling as she moves to the music – kind of like the play-by-play by a sports announcer.

Follow this link, and scroll down to the second video:

### **Anatomy of a Dance** **Sara Mearns on *Serenade***





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