



String Instruments

5 MINUTES READING #1

“If we were all determined to play the first violin we should never have an ensemble. therefore, respect every musician in his proper place.”

- Robert Schumann

The strings form the ‘backbone’ of the orchestra – more than half the members of an orchestra play string instruments.

The string section of a large orchestra may include:



- 16 first violins
- 14 second violins
- 12 violas
- 10 cellos
- 8 double basses
- 2 harps

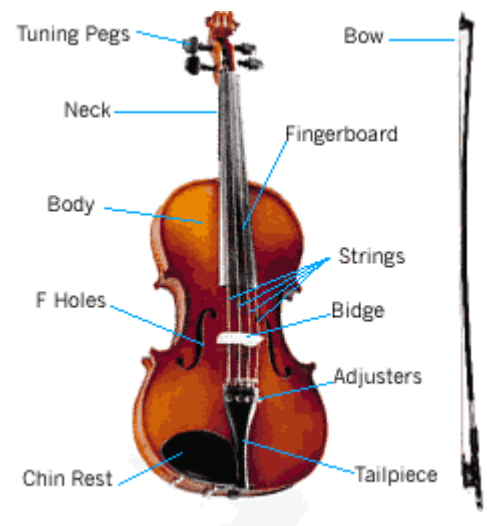
Notice that the violins are divided into two groups: first violins and second violins. The difference is not in the instruments themselves (which are exactly the same of course), but in the music which they play – the first violins usually playing higher notes than the seconds.

String family



Violins, violas, cellos and double basses all produce their sounds in exactly the same way. Four strings – of gut, metal or nylon – are stretched across a hollow wooden body. They are fixed to the tailpiece at one end, then taken across the bridge to the tuning-pegs.

Sometimes, the player uses his fingertips to pluck the strings: this is called playing **PIZZICATO**, but the more usual way of causing them to vibrate is by drawing a bow across them: this is called playing **ARCO** (‘with the bow’). The bow is a wooden stick with more than 200 strands of horsehair stretched tightly across it. Playing **ARCO** and **PIZZICATO** gives two different **TIMBRES** and **SONORITIES**.



Questions to think about:

1. What is the difference between the first and second violins in an orchestra?
2. How many strings does a violin, viola, cello and double bass all have?
3. What are the two different ways to play a violin, viola, cello or double bass?
4. How many strings does a harp have?
5. Describe two different playing techniques of the harp.



The Harp

Although the harp is counted as a string instrument, its construction and the way in which it is played is set apart from the other members of the string section. The harp is always plucked. It has 47 strings and seven pedals, one for each note of the scale. Two typical harp ‘effects’ are **ARPEGGIOS** – spreading out the notes of a chord; and the **GLISSANDO** – sweeping the fingers across the strings, again both producing different **TIMBRES** and **SONORITIES**.



Woodwind Instruments

5 MINUTES READING #2

“Never let the horns and woodwind out of your sight; if you can hear them all, they are too loud.”

- Richard Strauss

Although instruments of the woodwind section were originally made of wood, nowadays, other materials may be used. The sounds are made by causing a column of air to vibrate inside a hollow tube. Along the length of each instrument there is a series of holes, controlled by a system of keys, springs and levers. By opening and closing these holes, the player alters the length of the vibration column of air: the shorter the air column, the higher the note, the longer the air column the lower the note.

The woodwind section of a modern orchestra often includes:



- 2 flutes and piccolo
- 2 oboes and cor anglais
- 2 clarinets and bass clarinet
- 2 bassoons and double bassoon

WOODWIND family



Except for the flute and piccolo, each of these instruments has either a single or double reed. The flute and piccolo – which are held horizontally rather than straight in front of the player – produce their sounds by blowing air across an oval-shaped hole.



Questions to think about:

1. What modern day materials are woodwind instruments normally made out of today?
2. Which two woodwind instruments don't have reeds?
3. Which family of the orchestra is the saxophone sometimes wrongly placed in? Why?
4. Where do the woodwind instruments sit in an orchestra? Why?

The clarinet and saxophone (which belongs to the woodwind family although often gets confused with the brass section and isn't normally found in a traditional orchestra), have single reeds – a flat piece of cane shaved to delicate thinness at the end. Sometimes the bass clarinet is used – it looks similar to the saxophone and produces the same sounds as a lower pitch clarinet. The oboe, cor anglais (meaning 'English horn' – a kind of larger oboe with a slightly different **TIMBRE** and **SONORITY**), bassoon and double bassoon each have a double reed – two strips of thin cane bound together. Whereas the **TIMBRES** and **SONORITIES** of the strings section blend together, those of the woodwind are more distinctive and individual, tending to contrast rather than to blend. The woodwinds are frequently given solos to play, and so this section is placed in the centre of the orchestra directly in front of the conductor.



Brass Instruments

5 MINUTES READING #3

“To play the trumpet, you must train your lips for a long time. When I was twelve or thirteen I was a good player, but I lost the skill and now I play very badly. I do it every day even so. The reason is that I want to return to my childhood. For me, the trumpet is evidence of the sort of young man I was.”

- Umberto Eco

BRASS family



Questions to think about:

1. Put the four instruments from the brass section into 'rank order' from the lowest pitch to the highest pitch.
2. What was the problem with early trumpets?
3. Which of the brass instruments does NOT have valves?
4. How does a brass player produce a sound on brass instruments?
5. Where is the bell on a brass instrument?

Each instrument in the brass section is a length of hollow tubing with a mouthpiece at one end and a flaring 'bell' at the other. Although 'brass' is a convenient name for these instruments, they are more likely to be made out of mixed metals nowadays than pure brass.

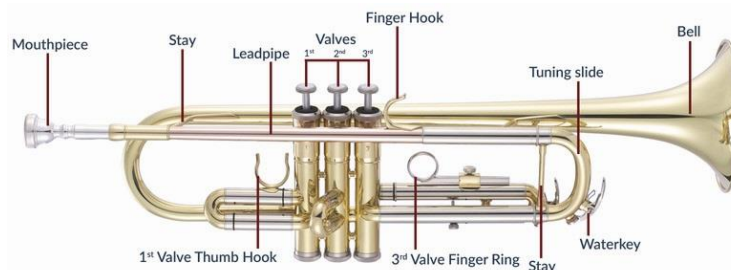
The brass section of a modern orchestra often includes:



- 4 French Horns (often just called 'Horns')
- 3 Trumpets
- 3 Trombones
- 1 Tuba

The pitch range of each of the brass instruments depends upon its length of tube. For instance, the tube of the French Horn is longer than that of the trumpet enabling it to sound lower notes.

To sound a note, a brass-player applies his lips to the cup-shaped mouthpiece and, as he blows, makes them vibrate. This causes the air column inside the tube to vibrate also, and so produce a note. A player can sound several notes merely by altering the tension of his lips, or slackening them – the tighter the lips, the higher the note. We call these 'natural sounds' the **HARMONIC SERIES**. Early trumpets could only play a limited range of notes, the harmonic series, but this was solved in 1815 by the invention of valves. The Trumpet, French Horn and Tuba all have three valves which are selected by the touch of a finger. Each of the three valves brings in an extra length of tubing. When a valve is pressed down, the air is then diverted along the extra loop. Valves may be used singly or in combinations.



The **TIMBRE** and **SONORITY** of brass instruments depends upon the type of mouthpiece used, the width of tubing and the flare of the bell. The Trumpet has a brilliant and majestic timbre and sonority. The French Horn has a rounder, more mellow timbre and sonority. The Trombone is the only brass instrument which doesn't have valves and the length of tubing is adjusted by a 'slide'. The tuba was not invented until the 1820's and is the largest and lowest pitch member of the brass section.



Percussion Instruments

5 MINUTES READING #4

“Percussion is the most adaptable family of instruments. The biggest challenge is to project percussion in a lyrical way.”

- Evelyn Glennie

percussion family

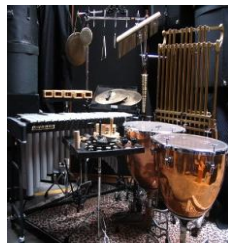


Questions to think about:

1. What are the 4 ways in which percussion instruments are played?
2. What is the difference between tuned and untuned percussion instruments?
3. Think about the instruments in your music room at school. Add to the untuned or unpitched percussion list naming any instruments not mentioned here.
4. Why is the piano a percussion instrument?

The percussion section includes those instruments which are struck or shaken, crashed or banged. These instruments can be divided into two groups. The first group is called **PITCHED** or **TUNED** percussion. These are instruments which can play one or more notes of definite pitch, and so possibly could play a melody or tune.

Examples of pitched or tuned percussion instruments include:



- Timpani (or Kettle Drums)
- Glockenspiel (metal bars)
- Xylophone (wooden bars)
- Tubular Bells
- Celesta

The second group is larger and includes all **UNPITCHED** or **UNTUNED** percussion instruments – those which make sounds of indefinite pitch, and so can only play rhythms, not melodies or tunes or different notes.

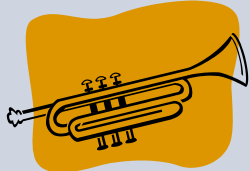
Examples of unpitched or untuned percussion instruments include:



- Bass Drum
- Snare Drum (or side drum)
- Cymbals
- Triangle
- Tambourine
- Castanets
- Woodblock
- Whip (slapstick)
- Tamtam (or gong)

Only on rare occasions will all these percussion instruments be heard in the same piece. Music written in the 1600's and 1700's for orchestra often only used the kettle drums as the only percussion instrument. During the 19th and 20th century, composers began to explore the colourful and exciting **TIMBRES** and **SONORITIES** of the percussion section much more and often used a large and varied selection of percussion instruments in their pieces to give exciting and unusual effects.

The piano (although often wrongly thought of as being in the strings section) belongs to the percussion family as it uses hammers which hit/strike the strings, although a piano is not a permanent member of an orchestra.



Fanfares I

5 MINUTES READING #5

And seven priests shall bear before the ark seven trumpets of rams' horns: and the seventh day ye shall compass the city seven times, and the priests shall blow with the trumpets. And it shall come to pass, that when they make a long blast with the ram's horn, and when ye hear the sound of the trumpet, all the people shall shout with a great shout; and the wall of the city shall fall down flat, and the people shall ascend up every man straight before him...

Joshua 6 v 4-5



Questions to think about:

1. What is a shofar?
2. Describe three ways in which fanfares have been used.
3. What other ways can fanfares be used to mark time?
4. Why were certain instruments more suitable for playing fanfares on the battlefield?
5. What fanfare is played at Remembrance Day services?

A fanfare is “a loud short piece of music, played, usually on a trumpet, to introduce the arrival of someone important or a special event” (Cambridge International Dictionary of English) “a flourish of trumpets; a showy outward display (Webster’s Dictionary)

The very first fanfares were written for the Shofar. A Shofar (*shown right*) is an ancient type of trumpet made from the horn of a ram. It was one of the earliest wind instruments known to man. This made a very powerful sound when blown as Joshua describes in the Old Testament of the Bible (*see quote left*).

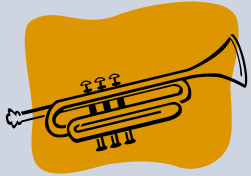


Krakow Hourly Trumpet Signal

As well as being used to announce someone important or to mark the beginning of a special occasion, fanfares have also been used to mark the passing of time before people had clocks and watches. In Poland, there is a church called the Church of St. Mary (Mariacki) on the corner of the main Market Square in Krakow. Every hour, since 1241, a Bugle is played and a fanfare sounded to announce the hour, like some of our churches having bells that chime every hour. The fanfare is played first facing west, then east, then south and finally the north. The Polish call this tradition The Legend of the Trumpeter. It was believed to date back to the medieval era when music was used to announce the opening and closing of the city gates or to warn the citizens of the town if there was a fire or an enemy invasion. In 1241, a bugler was killed by an arrow from invaders as he sounded his alarm, and therefore the fanfare now comes to such an abrupt ending. This bugle call was adopted in 1927 by national radio, and a live rendition is transmitted every day at midday.

Military Fanfares

Fanfares have been used for many years in the military and on the battlefield as a means of a signal for troops. Imagine the intense noise in a battle and before the invention of modern communications equipment, different fanfares were needed to signal retreat or attack. The fighting troops would need to be able to hear loud sounding instruments with a tone that could carry over long distances, so instruments such as the trumpet, bugle and drums were used – they had to be easy to carry too! There are many different fanfares (also called bugle calls) that are still in use by the military today. A fanfare such as “Reveille” is played first thing in the morning and is sounded as a wake-up call; “Mess” is sounded at mealtime and the best-known is probably “The Last Post” which is played at Remembrance Day services.



Fanfares 2

5 MINUTES READING #5

“I’ve always been a music fan. I played trumpet. When I was in 4th grade, we were getting demos from the music teacher about different instruments we could play, and I said I wanted to play the trumpet right away. It was easy; it just had three valves.”

- Kurt Vile



Royal Occasions

Since medieval times, fanfares have been used to glorify a sovereign and to herald the entrance of a King or Queen or other important person. Even now, fanfares are frequently performed when the queen visits different places and ceremonies. Early fanfares for royalty were simply a collection of musicians on bugles and trumpets blasting out as loud as they could and **improvising** music on the spot. At the wedding of George the Rich in 1470, it was said that there were “100 trumpeters and fifers producing ‘such a din’ that ‘one could hardly hear one’s own words’”.

The Italian composer **Monteverdi** uses a fanfare at the beginning of his **opera** ‘Orfeo’ which he wrote in 1607. This announces the mood of the occasion and gets the attention of the listeners – a musical way of saying “be quiet, the show is about to start!” The fanfare is played on violins and **cornetts**. A cornett is an ancient ebony instrument that is a cross between a recorder and a trumpet.



Cornett

The Harmonic Series

Our modern-day trumpets have three valves which the player uses to alter the length of the tubing to produce notes of many different pitches. In earlier times, trumpets, like bugles, had no valves and could only play a limited range of notes. These notes were called the **harmonic series** and most early fanfares use only these notes.



A valveless trumpet

A modern trumpet with valves



Questions to think about:

1. Early musicians used to **improvise** when playing fanfares. What does this mean?
2. Why do you think fanfares are played when royalty visit special occasions?
3. Why did Monteverdi write a fanfare at the beginning of his opera **Orfeo**?
4. Why do composers use the notes of the Harmonic Series when writing fanfares?