



STRINGS

String instruments produce a sound when their strings are made to vibrate. This can be done using:

- A bow which rubs the strings (violin).
- A keyboard with hammers which hit the strings (piano).
- The fingers which can pluck the strings (harp) or strum them with the nails (guitar)
- A plectrum (electric guitar).

Bowed-strings



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Violin. A bowed-string instrument played resting on the shoulder and held firmly by tucking the chin-rest under the chin. It is played by rubbing a bow across the strings. The different notes are made by placing the fingers on the strings in the correct position along the neck. The violin is a complex assembly of 70 different pieces. Its varnished body acts as a sound box and its strong neck is decorated at the end by a scroll. The bow is made of a wooden stick fitted with a ribbon of horsehair which is rubbed with a sort of resin, called rosin, to help the horsehair stick to the string. Tuning pegs tune the four strings running along the neck. A violin takes around 200 hours to make.



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Cello. A bowed or plucked string instrument and one of the largest of the violin family. It is twice as long as a violin! The cello is played sitting down, held between the knees, adjusting the length of the telescopic spike at its base to the correct height. Different sized instruments are made to allow smaller children to learn to play. The bow is shorter than the violin bow but the cello also has 4 strings, tuned to C, G D and A.



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Double bass. A bowed or plucked string instrument and the largest member of the violin family (1m80). It is used to play the lowest notes and is played standing up, its height adjusted with a telescopic spike. The strings are either plucked with the fingers of the right hand, or bowed. The double bass has 4 strings, tuned to E, A, D and G. Its body is made of wood which is left for a very long time to dry and mature.

Plucked strings



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Harpsichord. A plucked-string instrument with a wing-shaped body. The decorations on its lid were sometimes painted by famous painters. Its mechanism works by a system of plectra and jacks which lift when the keys are depressed and pluck the strings on their way past. Harpsichords can have one or more manuals (keyboards). They were very popular in Baroque music where they were often the dominant instrument.



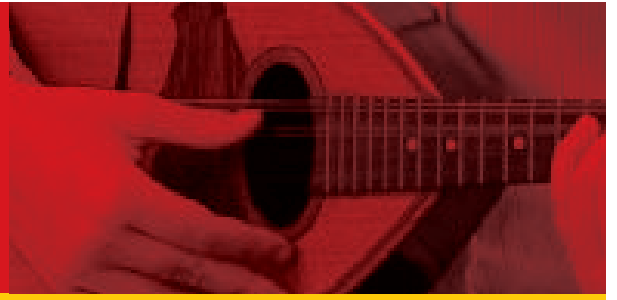
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Guitar. Guitars are plucked or strummed with either the end of the fingers or with the nails. They can be either acoustic or electric. They have 6 strings, tuned to low E, A, D, G, B and high E attached to tuning pegs. Sometimes different devices are used to pluck or strum the strings, for example a pick attached to the thumb, or a plectrum. The body can be hollow (acoustic guitar, as in the photo) or solid (electric guitar).



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Harp. A plucked instrument with 47 strings and many different tuning pins attached to pedals which can raise or lower the pitches of the notes. Before starting to play, the main tuning pins are used to tune the strings' basic notes. To help the musician find the right notes, the C strings are coloured red and the F strings coloured blue.



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Banjo. A plucked string instrument which comes originally from North America. It has a distinctive body in the shape of a tambourine, a long neck with 4 or 5 strings and is played with finger picks. The banjo plays rhythmic and harmonic accompaniments.



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Mandolin. A plucked string instrument with 4 double strings played with a plectrum. It has an almond or pear-shaped body depending on whether it was made in Milan or in Naples in Italy.



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Electric Guitar. Either plucked or strummed with the fingers or nails, electric guitars have a solid body which does not act as a resonating sound box. The strings are attached to it and pass over microphones which are plugged into an amplifier. They can also be attached to a tremolo arm which adds vibrato to the sound. Electric guitars with their amplified steel strings have a stronger sound than acoustic guitars. There are several different sorts: solo, bass...

Struck Strings



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Piano. A struck string instrument with keys which are depressed by the pianist. These keys are attached to felt-covered hammers which in turn strike the strings to make them vibrate. Each key corresponds to a different note, from the lowest notes on the left of the keyboard to the highest on the right. Pianos also have pedals which can modify the sound. Two main sorts of piano exist: the grand piano (as in the photo), and the upright piano which takes up less space and is played by beginners.



WIND INSTRUMENTS

The sound in wind instruments is produced by the musician's breath which is directed either via a reed or another sort of mouthpiece. In brass instruments, the lips themselves make the air vibrate.



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Brass

Trumpet. A wind instrument made of a coiled brass tube to which are fitted three button valves on springs which are used to change the pitch of the notes. The tube ends in a flared bell. The trumpet's bright, sparkling sound can be softened by using a mute, a sort of plug inserted into the bell.



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French horn. A wind instrument made of a long, conical tube in several coils, ending in a widely flared bell. It has a funnel-shaped mouthpiece and a very peculiar playing position, the musician holding the horn on its side with his hand in the bell! The different notes are obtained by a system of button or key valves. Horns have a warm, romantic tone.



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Trombone. A wind instrument with two cylindrical U-shaped tubes fitted into each other. To change the pitch of the notes, the musician slides one half of the tube in and out which lengthens or shortens the length of the column of air in the tube. The slide has 7 different positions. The longer the tube, the lower the note.



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Tuba. A wind instrument which plays bass parts. The tuba is the lowest-sounding instrument of the brass family, but it can have a very melodic, singing tone. It has a system of valves which modify the length of the tube to change the pitch of notes. The instrument is held up with the left arm.

Woodwind



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Flute. The transverse flute is a wind instrument with a complex mechanism of 150 different parts! It is played held horizontally towards the musician's right-hand side. The sound is made by blowing across an oval hole in a rounded plate which helps direct the air stream for it to vibrate correctly. The different notes are obtained by depressing keys which in turn stop off 15 finger holes with only 9 fingers! Each key is fitted with a pad which ensures the finger hole is well sealed to produce a true note. Flutes can be made of wood or of metal.



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Recorder. A wind instrument which dates from Prehistoric times when early Man first bored holes in reeds, stopped off the holes with his fingers and blew into the tube! It now has 3 parts: the head section (mouthpiece), the body which is a straight, hollow tube of wood or plastic pierced with finger holes, and the tailpiece (bell). The player blows into the beak-shaped mouthpiece which produces the sound. The air comes out through the finger holes if they are not stopped off by the fingers. The position of the fingers on the holes determines the note produced. Each finger always covers the same hole and doesn't move around on the instrument.



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Pan pipes. A raft-shaped wind instrument made of several different-sized tubes of bamboo bound together. The bottom ends of the tubes are closed off. The musician blows across the top of the tubes, each of which produce a different note. Pan pipes are often played in South America.



Double-reed instruments



Oboe. A wind instrument made of a wooden tube fitted with finger holes and keys. It has a double reed made out of a sliver of cane bent in half which vibrates when the musician blows into it. The reed is very fragile and has to be replaced very often. The musician's left hand holds the upper body and the right hand the lower body. As the oboe is hard to tune and has a penetrating tone, it is used to sound the note for tuning the other instruments in the orchestra.



Bassoon. A wind instrument made of 2 maple-wood pipes linked together with a U-shaped tube. The longest of the two pipes leads to the bell and is called the bass joint. The shorter pipe is the tenor joint. The bassoon also uses a double-reed: the air passes in between the two layers of cane and forces them to vibrate together. Finger keys are used to obtain the different notes. The bassoon is held on the right-hand side of the body with the bell pointed upwards. A small thumb rest helps the right hand hold the instrument.



Bagpipes. A wind instrument with 4 main parts: a blowpipe into which the musician blows to fill up the air bag, a chanter which is like a small double-reed oboe with finger holes, one or more drones which are single-reed pipes producing low-pitched single notes, and the bag, made of goat or sheep-skin which acts as an air reservoir. A bagpipe player is called a piper. To play different notes, he places his fingers flat on the chanter, inflates the bag and presses it under his arm. The air is forced out through the chanter and the drones. The longer the drones, the lower the note produced.



Single-reed instruments

Clarinet. A cylindrical wind instrument made up of 5 main parts fitted together: the mouthpiece onto which is fixed the reed (a sliver of cane), the barrel joint, used for fine-tuning the instrument, the upper joint, containing the right-hand keys, the lower joint with the left-hand keys, and the bell. The clarinet is played by depressing the keys covering the finger holes to change the notes.



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Saxophone. A wind instrument with a mouthpiece similar to that of the clarinet on a brass body. It has a complicated key system and a flared bell. The mouthpiece is fitted with a single reed which is very fragile. When the musician blows into it, the reed vibrates producing a sound which is amplified by the body of the instrument. It has a very expressive sound. There are 7 different sizes of saxophone.



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Free-reed instruments

Harmonica. A wind instrument consisting of a small metallic box measuring around 10 cm. It is made of a series of internal tubes, each of which is fitted with a free-beating reed. When the musician blows into the tubes, he makes the reeds in the front of the instrument vibrate, when he sucks in air, the reeds at the back vibrate. In order not to play a particular note, the corresponding tube can be blocked by the tongue.



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Accordion. A wind instrument with an air reservoir which is actioned by pulling apart or pushing together the bellows. This causes sets of free reeds to vibrate. The accordion is held by straps passing over the shoulders which leave the musician's hands free. The tune is played with the buttons or keys on the right hand side. Each of these opens a reed cavity which produces a note. The buttons on the left-hand side produce accompanying notes and chords. Accordions come in different shapes and sizes according to their model, origin or period.



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Organ. A wind instrument which has been used for centuries in a religious context in churches. The sound of the organ is produced by air passing through hundreds of pipes, the length of which may vary from 1 cm to sometimes 10 metres. The musician is called an organist. He plays on up to five different manuals (keyboards) plus a set of pedals. A great many different "stops" allow the organist to change the sound by linking together different combinations of pipes.



PERCUSSION

Percussion instruments are struck with the hands, sticks or beaters. Some instruments are used just to create rhythms, some can produce precise notes and play tunes. Other percussion instruments can be plucked, shaken or scraped. They can be classified according to the material they are made from : wood, skin or metal.



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Idiophones (where the whole instrument vibrates)

Guiro. A percussion instrument made of a long gourd, hollowed-out and with grooves cut along one side. It can be played either by scraping a stick along the grooves, or by hitting the smooth part. Guiros can be heard mainly in music from the Carribean.



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Triangle. A percussion instrument made of a metal bar bent into a triangular shape. It is usually suspended from the index finger, the rest of the hand being used to muffle the resonance by gripping one of the sides. The musician plays rhythms with a metal rod held in the other hand. The triangle has a high-pitched, crystalline sound, the pitch of which is determined by the size of the triangle.



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Steel drum. A percussion instrument which originated in Trinidad and Tobago (in the Caribbean). It is made from a large oil drum. The concave top side of the drum is carefully hammered into several facets, each of which produce a given note when struck. They are tuned like a piano. The musician plays by striking the facets with small beaters.



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Cymbals. Percussion instruments made up of a pair of metal disks. When they are struck together they produce a resounding crash! They can also be rubbed together in a circular movement. Single cymbals can be suspended on a stand and struck with a felt-headed beater, or with a metallic brush. Single, short sounds or longer resonant sounds can therefore be produced.



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Jew's harp. A percussion instrument made of a metallic frame to which is attached a metal tongue. It is played by holding the frame firmly against the slightly opened teeth with the lips resting lightly on it. The player then flips the metal tongue with his index finger. By changing the position of the tongue it is possible to obtain a variety of different sounds. The jew's harp is said to be one of the oldest instruments in the world.



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Lamellophones

Xylophone. A percussion instrument made of a series of wooden bars of different lengths set out like a piano keyboard over a resonating box, or on individual sound boxes. It is played with rubber, plastic, or felt-headed beaters.



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Balafon. A percussion instrument of African origin. It is a traditional sort of xylophone which is also made of different lengths of wood, but which are fixed over a series of different-sized gourds arranged in order of size from the lowest to the highest pitch. These gourds act as the sound boxes. All the different elements are bound together on a bamboo frame with thongs of goat or deer skin. The balafon is played with rubber-headed beaters.



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Vibraphone. A percussion instrument made of metallic bars fixed over resonating tubes. Each tube is fitted with a little fan which is set in motion by an electric motor. The movement of the fans produce a vibrato effect. The beaters used have heads of varying density according to the sound required. The bars are normally struck in their centre and it is important to master the muffling of the sound and the pedal control in order to produce a clear musical performance.

Membranophones (using skins)



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Djembe. A percussion instrument originating in Africa. It is a goblet-shaped wooden cylinder covered with goatskin which is stretched over the frame by a system of cords attached to a circular frame. Several different sounds are possible: the “tone” note, played by hitting the edge of the skin with the fingers held together, the “slap”, obtained by slapping the hand onto the rim of the drum with the palm and fingers held loosely, and the “bass”, where the whole hand strikes the centre of the skin.



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Congas. Percussion instruments of Afro-Caribbean origin. They are made of long, slightly conical cylinders covered with a thick skin which can be tightened by tuning screws fitted to a metal circular frame. Congas are played in sets of two or three instruments. The hands strike the skins either on the edge or in the centre.



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Snare drum. A percussion instrument made of a metallic body covered on both sides with a synthetic skin (head), one side used for playing, the other for the resonance. The tension is regulated by a series of eight tuning screws. It is played with wooden drumsticks, or with metal brushes. The snare drum is a descendant of the military side drum.