

The instruments of the orchestra

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to Angela Colbers

The wind instruments

At the back of the orchestra the wind instruments have found a place (**play winds, 5 sec**). Some wind instruments have been made of wood (**show**) and others are made of metal (**show**). Just like the string instruments the different wind instruments vary in size from very small (**show piccolo**) to big (**show tuba or contrabassoon**).

With string instruments, the vibrating string is the source of the sound, with wind instruments different ways are used to force the air to vibrate. At the flute mouthpiece (**show flute**) with the lips some airflow from breathing-out is directed towards a rather sharp edge causing some sound. With the so-called reed instruments (**show reeds**) a thin reed is forced to vibrate, and with the brass instruments a slight air flow between the lips causes vibration (**show brass mouthpiece**).

Then, *very important*, after the mouthpiece a piece of tube is mounted. And the air column inside that tube might vibrate as well, the so-called *resonance*. That only happens when the vibrations in the mouthpiece are at a pitch that is able to resonate in the specific length of air column. A much louder and more defined sound is then generated (**play trumpet mouthpiece separately and mounted**). That resonance happens at a *short* tube for *high pitch* (**play piccolo**) and at a *long* tube for *low pitch* (**play tuba**).

The flutes

We start with the flutes. Flutes are members of the woodwind family and have been built in many different shapes and configurations. Normally, in a symphony orchestra the transverse flute is used and this flute is held perpendicular to the blowing direction (**show flute playing position**). Sound is generated here by directing an airflow from breathing-out towards an edge with the lips (**flute plays mouthpiece**). Then *resonance* occurs in the air column inside the tube that is next to the mouthpiece. Along that tube a range of holes is made, most of them fitted with keys. By opening or closing these holes the length of the resonating air column inside the tube can be varied so changing the resonance pitch (**flute plays a series of scales**).

These flutes are also a family of instruments of different sizes. The piccolo (**show**) is the smallest instrument of the orchestra and can play notes at a very high pitch (**piccolo plays some high scale**). The most common flute is the treble flute (**show**) and that is twice as long as the piccolo (**flute plays some scales as well**). The flute can perform very fast notes and in the lower range produce a very romantic sound. And because playing a trill is easy on the flute it can perform the bird whistle in the orchestra very well (**play trills on the flute**).
(Now the flutes will play some short piece).

Andante grazioso ♩ = 80

Piccolo 1

Piccolo 2

mf

mf

6

11

change to flute

change to flute

mf

16

Adagio ♩ = 60

rall.

mf

22

rall.

Finale

Allegro maestoso, ♩ = 112

