

Flutes have been played for thousands of years, and exist in many different types. They were originally made of wood, but are now usually made of silver or gold. They are cylinders with a hole near to one end. The player holds the instrument at right angles and blows across the hole, making the air in the cylinder vibrate. The lowest note on a flute is middle C, although some instruments can play B. Flutes can not generally produce loud sounds at low registers. They produce a pure sound, with few overtones. They can produce a number of special effects, e.g. a rather ghostly sound from flutter-tonguing.

Oboes have two reeds, so produce a very rich sound, which can create a number of moods, from playful to sad. They have a similar range to the flute.

Clarinets are wooden cylinders, which can be broken into three sections for storage. They have one reed. Their music is always written in the treble clef, but good performers can play notes from E below middle C to well above the treble clef. High notes, however, tend to be strident. Clarinets come in various sizes, each size producing notes at different pitches. The A clarinet was quite popular in the eighteenth century, but the B flat clarinet has become most popular. When the performer plays the note s/he calls 'C', the instrument actually plays the note B flat. As a result, all music for this instrument has to be transposed a tone higher than it sounds. Alto clarinets (in E flat) and bass clarinets (in B flat) are sometimes used.

The cor anglais is like an oboe with a lower range. It is a transposing instrument (in F).

Bassoons have two reeds. Like oboes, they can create a number of different moods. Their music is written in the bass clef. They also come in a larger size with a lower register, the contrabassoon. Bassoon parts are written in the bass clef, although tenor clef is used for high notes.

The saxophone is made of metal, but has a reed. It is found more in jazz bands than symphony orchestras. However French and American composers have sometimes used the instrument. American composers tend to use the instrument to produce lively sounds, like a brass instrument. French composers prefer a more gentle sound like a clarinet. Sometimes the saxophone can sound quite haunting. Saxophones come in several sizes. The most popular is the alto, a transposing instrument (in E flat).



Flutes and oboes came into the orchestra during the Baroque Period in the seventeenth century. At that stage, they were used in much the same way as the string section. (In fact, violins, flutes and oboes sometimes played each other's music.) Clarinets were added in the late eighteenth century. By this stage, woodwind instruments were used to fill in the harmonies, or double the strings, or echo the strings. Bassoons were added in the nineteenth century. Conductors then learned to use particular woodwind instruments for the particular timbre (type of sound) they could produce.

The woodwind section is normally seated behind the violas. Its parts are at the top of an orchestra score.

BRASS

These were originally made of brass, but are now made from various different metals.

Brass players produce sound by vibrating their lips. The lips are pressed against a funnel- or cup-shaped mouthpiece which directs the sound through the metal tube. Players can produce sounds at different pitches by changing the position of their lips (*embouchure*) – as their lips are tighter, they produce higher sounds. However the performer can gain only a certain number of notes in this way. These follow the harmonic series. (This consists largely of one octave of a major arpeggio with a scale over the top.) To produce any other notes, the performer has to change the length of tube. On a trombone the player moves a slide in and out. In other brass instruments, there are (usually three) extra tubes of various sizes, operated by valves. By pressing one or more valves, the player can produce different notes.

Valves did not come into wide use until the middle of the nineteenth century. Until then, performers