Hornbostel and Sach's method

• More specific - Categories are subdivided into smaller and smaller categories, making a sort of family tree of related instruments (related by function, not by history).

• More inclusive - Any instrument can be categorized.

• More accurate. - Instruments are grouped according to how sounds are produced, not according to which instruments the composer is likely to group them with in the music or which orchestra member is likely to play them.
Five Categories

- Chordophones
- Aerophones
- Membranophones
- Idiophones
- Electrophones
Chordophones

In a chordophone, the sound is made by vibrating strings.
The main groups of chordophones are classified according to the relationship between the strings and the resonator. (Resonators pick up the original vibrations and vibrate sympathetically with them, amplifying the original sounds and altering them so that they sound more musical.)

Subcategories depend on how the string is played (plucked or bowed for example), and types of resonators.
Aerophones

In aerophones, the sound is produced by vibrating air (usually inside the instrument).

The instrument, or parts of the instrument, are shaped (often into a tube or set of tubes) so that the vibrations will be a particular length, and so a particular pitch.
Aerophone Categories

- In **whistles**, the air is blown at a sharp edge in the instrument (as in recorders as well as police whistles).
- In **blowhole** instruments, the air is blown across the sharp edge at the blowhole. When the instrument is tube-shaped, the blowhole can be in the end ("end-blown", as in panpipes), or in the side of the instrument ("side-blown", as in a fife).
- In **reed** instruments, the vibration of a reed or reeds begins the air vibration. In **single reed** (saxophone, for example) and **double reed** (oboe) instruments, the one or two reeds are part of the mouthpiece. In bagpipes and in **free-reed** instruments (such as harmonica and accordion), the single or double reeds are mounted somewhere inside the instrument and there can be many of them - sometimes a different reed for every pitch.
- In **cup mouthpiece** instruments, the player buzzes the lips against the mouthpiece, causing a sympathetic vibration in the air inside the instrument. (bugle, conch shell).
- **Free aerophones** (bull-roarers, toy spinning tops), cause vibrations in the air around them rather than inside them.
Membranophones

In membranophones, the sound begins with the vibration of a stretched membrane, or skin (often an actual animal skin), but the skin is usually stretched across a resonator.
Membranophones

Membranophones are usually classified according to the shape of the resonating body of the instrument.

- **Tubular drums**
- **Kettledrums** or **vessel drums** have rounded bottoms.
- In **frame drums**, the membrane is stretched over a frame, usually making a wide, shallow instrument. (Tambourines are in this category.)
- **Friction drums** come in a variety of shapes. Instead of beating on the membrane, the player runs a stick through a hole in the membrane.
- In **mirlitons**, the membrane is made to vibrate by blowing air across it. These are the only membranophones that are not drums. (Kazoos are in this category.)
Idiophones

In idiophones, it is the vibration of the instrument itself that is the main source of the musical sound. Idiophones are classified according to what you do to them to make them vibrate.
Categories of Idiophones

- **Percussion** idiophones are hit with sticks, beaters, or clappers (bells, steel drums).
- **Shaken** idiophones are shaken (maracas, eggs, jingle bells).
- **Concussion** idiophones are played by clashing two of them together (castanets, claves, spoons).
- **Friction** idiophones are made to vibrate by rubbing them (as when you make a wine glass ring by rubbing its rim).
- **Scraped** idiophones are played by scraping a stick across a set of notches or corrugations on the instrument (guiro, washboard).
- **Stamping** idiophones are stamped on the ground, floor, or hard surface. (Tap shoes are in this category.)
- **Plucked** idiophones have a thin tongue of metal or bamboo that vibrates when plucked (jew's harp, mbira or thumb piano).
Electrophones

Their sound is both produced and amplified by electronic circuits. (This group includes the electric organ, synthesizer, and Therememin.)
Hybrid instruments should be classified according to how the sound is produced before it is amplified. For example, the electric guitar is still a plucked lute chordophone, regardless of how it’s amplified.
The End