THE MECHANISM OF SOUND
-GAGAKU HAS IT’S OWN UNIVERSE-

Hisumi Elementary School
Niigata, Japan
Akiko Kojima
Official website of the Imperial Household Agency

http://www.kunaicho.go.jp/culture/gagaku/gagaku-ph.html
“和の心”
“WA NO KOKORO”
Spirit of Harmony

Teamwork and Harmony
The Basic Scales (Ritsu Scale)

宮 Kyu 商 Sho 角 Kaku 徵 Chi 羽 U
(Re Mi So La Si )

Earth Metal Wood Fire Water

Saturn Venus Jupiter Mars Mercury
Wind Instruments

Sho (organ-like wind instrument)

Ryuteki (flute-like wind instrument)

Hichiriki (oboe-like wind instrument)
String Instruments

So (Koto)

Biwa (Japanese lute)
Percussion Instruments

Shoko (Japanese gong drum)

Gakudaiko (Japanese drum)

Kakko (Japanese percussion)
The world’s oldest extant orchestra
Wind Instruments
The Mechanism of Sound
Blow
Blow

The air pressure drops with faster flow

Two sheets are pulled together
The mechanism of the sho (free reed)
(The voice of the heavens)
Sho (organ-like wind instrument)

Harmonica

Phoenix

The voice of the heavens
Higashimachi-matsuri-yatai Ho-o/Phoenix by Katsushika Hokusai
Hichiriki (double-reed flute)

Oboe

The voice of humans on the earth
Ryuteki (flute-like wind instrument)

Flute

The voice of the dragon
Moving between heaven and earth
The earth and human beings

“Hichiriki”

The dragon moves between heaven and earth.

“Ryuteki”

Heaven

“Sho”
The voice of the heavens

The voice of humans on the earth

The voice of the dragon

Free Reed

Double Reed

Air Reed
HOW TO MAKE THE VOICE OF THE HEAVENS (FREE REED)

Crush the end of the straw.

Close it off with cellophane tape.

Make two cuts with a box cutter. The space between the cuts should be about 2 or 3 mm.
HOW TO MAKE THE VOICE OF THE EARTH (DOUBLE REED)

Cut the end of the straw with scissors to make a triangle.
HOW TO MAKE THE VOICE OF THE DRAGON (AIR REED)

Fasten from above with cellophane tape.
The voice of the heavens
The voice of humans on the earth
The voice of the dragon

Free Reed
Double Reed
Air Reed
The voice of the heavens
The voice of humans on the earth
The voice of the dragon

Free Reed
Double Reed Air Reed

"和の心"
"WA NO KOKORO"
Spirit of Harmony

Teamwork and Harmony
Air

Pitch
Volume
Tone

“WA NO KOKORO”
Teamwork and Harmony
[Reference]
• Takeshi Sasamoto
  “Introduction to Gagaku,” Tokyodo Shuppan, 2003
• Toru Endo
• Official website of the Imperial Household Agency, Japan

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