

# Spouting Bowl

The Chinese Spouting Bowl first appeared in the Han Dynasty (202 BC - AD 9). Four “Han” dragons can be seen in the bottom of the basin, spraying streams of water into the air. It is said that the bowl was a kind of plaything for nobles, gifted scholars and socialites in the Ming Dynasty. It was believed to foster happiness, prolong life and increase strength.

## WHAT TO DO

Wet your hands completely and slowly rub both handles.

## WHAT'S HAPPENING?

The Spouting Bowl demonstrates the behavior of waves and their interactions. Rubbing the handles causes the bowl to vibrate and produce waves in the water which bounce around (reflect) and combine with each other (interference) to create ripples or "standing" waves on the water surface. Soon these waves grow so large (resonance) that water drops shoot into the air like tiny fountain jets, growing and diminishing with each stroke of the handle. The two precise frequencies or musical notes that you may hear (the natural frequencies) depend on the design of the bowl itself, and not how you rub the handles (although how you rub them does determine which natural frequency is produced). Note that the low note produces larger droplets from 4 locations around the rim (the mouth of each dragon) while the higher note produces smaller droplets from 8 locations.