

How to calculate Hertz the frequency of each pipe

What is a Hertz? It is the SI unit of frequency, equal to one cycle per second.

v = speed of sound in air (room temperature)~ 330-340 m/s

λ = wavelength (*4 X's the length of the tube measured in meters*)

10cm = .10 m

f = frequency in Hertz

The velocity of a sound wave (v) is equal to its frequency (f) times its wavelength.
or

Frequency = velocity divided by wavelength

$$f = v/\lambda$$

$f = 340\text{m/s} / (.10\text{m} \times 4)$

$f = 340\text{m/s} / .40 \text{ m} = 850 \text{ Hertz}$

Pipe lengths

$\frac{1}{2}$ " or $\frac{3}{4}$ " PVC

Note	Length (cm)	Frequency (Hz)	COLOR
F ₁	23.6	349	BLACK 1
G ₁	21.0	392	PINK 1
A ₂	18.7	440	RED 1
B _{b1}	17.5	446	GREEN 1
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C ₁	15.8	523	BLUE 1
D ₁	14.0	587	ORANGE 1
E ₁	12.5	659	YELLOW 1
F ₂	11.8	698	BLACK 2
G ₂	10.5	784	PINK 2
A ₂	9.4	880	RED 2
B _{b2}	9.2	892	GREEN 2
C ₂	7.9	1046	BLUE 2
D ₂	7.0	1174	ORANGE 2
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E ₂	6.2	1318	YELLOW 2

Only
cut
these 9
pipes

Pipes F₂-D₂ six notes

F F C C D D C B_b B_b A A G G F

C C B_b B_b A A G C C B_b B_b A A G

F F C C D D C B_b B_b A A G G F

Pipes C₁, D₁, E₁, G₂ - four notes

E D C D E E E D D D E G G

E D C D E E E E D D E D C

Pipes C_1 through G_2 five notes

E E E E E E E G C D E

F F F F F E E E E E D D E D G

E E E E E E E G C D E

F F F F F E E E E G G F D C