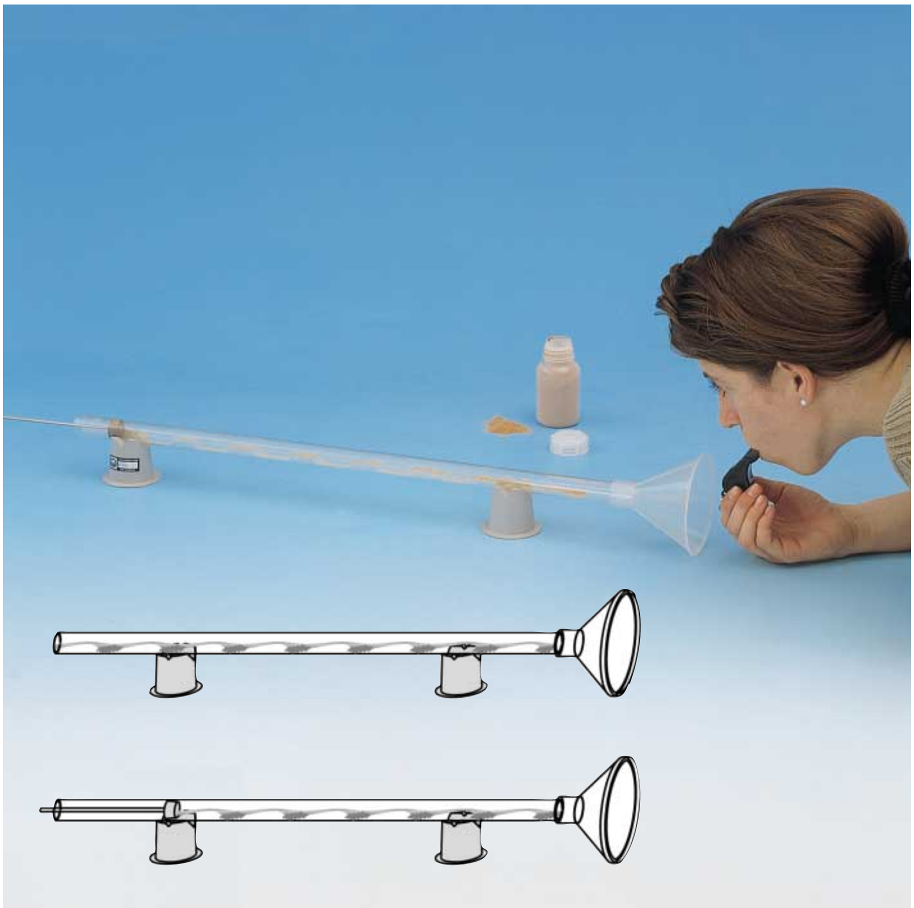


Kundt's tube: determining the wavelength using the cork-powder method (P 1.7.3.1)

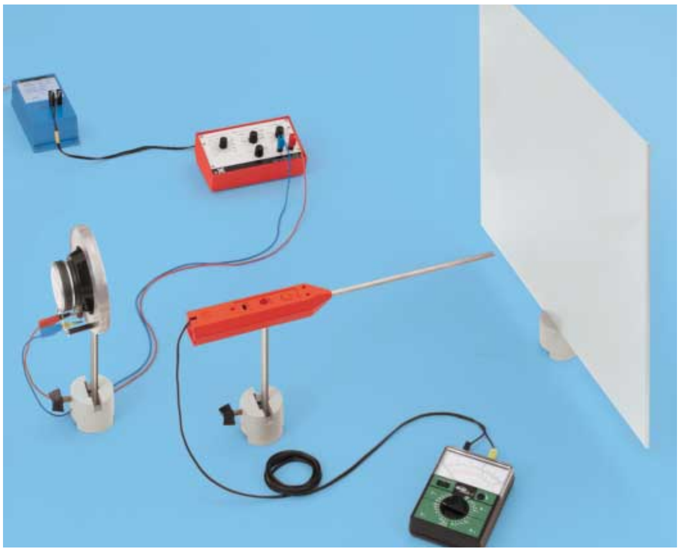
P 1.7.3

Wavelength and velocity of sound

P 1.7.3.1 Kundt's tube: determining the wavelength using the cork-powder method

P 1.7.3.2 Determining the wavelength of standing sound waves

Cat. No.	Description	P 1.7.3.1	P 1.7.3.2
413 01	Kundt's tube	1	
586 26	Multi-purpose microphone		1
587 08	Broad-band speaker		1
587 66	Reflection plate		1
522 621	Function generator S 12, 0.1 Hz to 20 kHz, supply: 12 V DC		1
531 100	Voltmeter, DC, $U \leq 3$ V, e. g. Multimeter METRAmax 2		1
311 77	Steel tape measure, 2m		1
460 97	Scaled metal rail, 0.5 m	1	
300 11	Saddle base		3
501 46	Pair of cables, 1 m, red and blue		1



Just like other waves, reflection of sound waves can produce standing waves in which the oscillation nodes are spaced at

$$d = \frac{\lambda}{2}$$

Thus, the wavelength λ of sound waves can be easily measured at standing waves.

The first experiment investigates standing waves in Kundt's tube. These standing waves are revealed in the tube using cork powder which is stirred up in the oscillation nodes. The distance between the oscillation nodes is used to determine the wavelength λ.

In the second experiment, standing sound waves are generated by reflection at a barrier. This setup uses a function generator and a loudspeaker to generate sound waves in the entire audible range. A microphone is used to detect the intensity minima, and the wavelength *b* is determined from their spacings.

Determining the wavelength of standing sound waves (P 1.7.3.2)