

**M**aterials which set up vibrations in the air make sound. These vibrations are little 'puffs' of higher air pressure followed by gaps of lower air pressure. The bigger these 'puffs' are, the louder is the sound. Loudness is measured with a sound meter or sound sensor. The unit for measuring sound is the decibel, named after Bell, the inventor of the telephone. A 'Bel' is too large a unit for everyday use so we use the decibel.

The pitch of a sound, which is how high or low a sound is, must not be confused with loudness. To measure the pitch of a sound you need an oscilloscope or frequency meter.

In this activity the children guess how loud sounds are and compare their guesses with the sound sensor. The activity aims to highlight the value of using measuring instruments.

## You will need

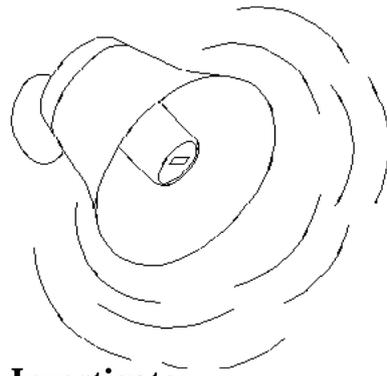
Aim at a balance of percussion, string, wind and electronic sound makers: musical instruments, a ticking clock, elastic bands, spoons, scissors, tuning forks, containers filled with rice or paper clips, blocks of wood, a drum, a radio and so on. Interface, cable, sound sensor, software.

## Starting points

Do your folks ask you to 'turn down the noise?'  
Does 'loud' depend on what the sound is?

Can they use their ears to find the loudest and the quietest sound makers? How could they record how loud the sounds are?

See how quiet the group can be.



## Investigate

Get the software to show the sound level as a number or bar gauge. The sensor is very sensitive and picks up most sounds. How can they measure the sound from the sound maker and not something else in the room?

Where should they place sound source and sensor?

How do their guesses compare with the sound sensor?

