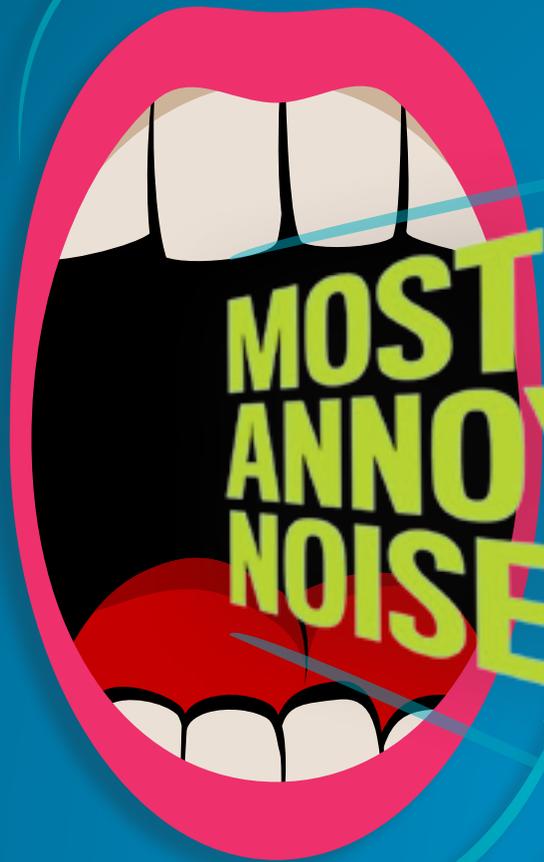


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MOST ANNOYING NOISES

Dr Harry Witchel sticks in his ear plugs and shares his list of the most irritating sounds according to science...

10 PERSISTENT MUSIC LATE AT NIGHT

ONE OF THE most widespread complaints received by the Noise Abatement Society concerns loud music being played by neighbours at night. For the party-goers the music is pleasurable, while for the complainants it is unbearable. Context and control determine how people emotionally interpret the soundscape; a 'noise' can be thought of as a sound that is out of place. People can be sensitised to a persistent sound that is out of their control, even if the sound is quiet — this is why some people find a dripping tap so grating.



9 VICIOUS DOG BARKING

A DOG'S BARK has almost everything: it can be loud and surprising, it has associations with danger and threat. People's mental connections to the sound of a dog barking make them feel bad, because vicious dogs conjure up unpleasant memories. The actual sound itself is also irritating because of its rough quality; for most sounds, roughness makes the sound more grating. Acousticians define roughness as rapid fluctuations in how powerful a sound is (20–200 cycles per second). The fluctuations have to be fast enough that they are heard as part of the sound's texture, rather than as individual changes in the sound's loudness.

8 THUNDER

THE MAIN REASON thunder is so frightening to small children is because it suddenly becomes so loud. Similarly frightened responses can arise from fireworks or loud gun shots. Any sound can be aversive if it is loud enough. The cochlea, the sensory organ for sound in



the inner ear, can be damaged by loud sounds. As the amplitude of sound waves in the cochlea approaches the threshold for this damage, the sounds cause pain.

7 FLATULENCE

VOLUNTEERS IN AN experiment by Trevor Cox at the Acoustics Research Centre at the University of Salford ranked the noise made by a whoopee cushion as one of the most irritating. It's not loud but its association with embarrassment is likely to be the root of its annoyance. Some sensitive souls find the sound of flatulence unpleasant to hear – although for many flatulence is a staple of comedy, from Benny Hill to *Blazing Saddles*. In Japan, women in public toilets found the sound of urination so embarrassing that they would run the electric hand driers to mask the tinkling. The Japanese solution has been to pipe Barry Manilow records into public loos.



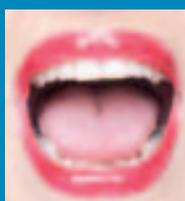
6 BABY CRYING

EVOLUTION HAS MADE us particularly sensitive to the sound of a baby crying. The sound spectrum of crying is composed mostly of frequencies from 2,000 to 4,000 cycles per second. These frequencies are perceived as 'sharp', an unpleasant acoustic property. The evolutionary reason for being more sensitive to sharp and rough sounds is probably so that we are roused to action by human shrieks and babies crying.



5 WOMAN SCREAMING

THE SOUND OF a woman screaming is even more upsetting than a baby crying. Evolutionarily, this alarm call would highlight danger to the tribe, in order to attract aid or instigate retreat. In one of my own experiments, participants occasionally smiled at a female scream because it reminded them of horror movies. This probably happens because cultural associations can reverse the alarming effects of a piercing scream.



4 KNIFE ON A BOTTLE

IN A STUDY of piercing sounds by Dr Sukhbinder Kumar and his colleagues at Newcastle University's Medical School, the noise of a knife scraping a bottle was rated as even more annoying than fingernails on a blackboard. Other sharp and rough sounds that have been rated as highly irritating include railroad brakes, grinding machinery and a metal rake against a slate stone.



3 FINGERNAILS ON A BLACKBOARD



THIS IS A grinding sound in the frequency range associated with sharp noises. However, sharpness alone is not what makes this sound excruciating. It's also very rough. The effect of nails on a blackboard is very difficult to reproduce with a recording, so although many lab studies using recorded sounds find this sound to be less annoying than others, it's often reported to be individuals' number one hated noise.

WHAT DO YOU THINK?

What noises bug you? Have we missed a sound that irritates you? Let us know your opinions on twitter.com/sciencefocus (#annoyingnoises) or email us at reply@sciencefocus.com

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2 MICROPHONE FEEDBACK

WHEN YOU HEAR the high-pitched sounds of microphone feedback, does it make the hair on the back of your neck stand up, or do you just want to stick your fingers in your ears? Of all the sharp noises reproduced in the lab this is loudest and sharpest and, when tested, a University of Salford experiment rated it number two for horribleness.

1 VOMITING

DOES THE SOUND of vomiting make you feel queasy? In a study of 385,000 internet responses to 34 unpleasant sounds, vomiting was rated as the worst. The sound of vomiting is so nauseating because of your mental associations to it. It brings up people's most repulsive feelings of bodily discharge – in all its unhygienic glory. Interestingly, the acoustic properties of vomiting are not particularly noxious: it is neither rough nor sharp. Sensations associated with disgust are especially well learned by mammals because this skill is necessary to avoid poisonous foods.

