

# World's biggest whoopee cushion helps kids understand the science of sound

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A giant whoopee cushion, a barber's shop quartet transformed by technology into a rock band, and 4,500 schoolchildren encouraged to be noisy – these are just some of the surprises being served up in a groundbreaking science lecture at London's Royal Albert Hall.

'Beautiful Music, Horrible Sounds' aims to fascinate, amuse and inspire an audience of 7-14 year olds by exploring what sound is, why different sounds provoke positive and negative reactions, and how technology can be used to make sounds nicer – or nastier. It will even explain why humans have two ears.

Trevor Cox, Professor of Acoustic Engineering at Salford University, will deliver this Royal Institution Science for Schools lecture. It is the biggest live event ever to be organised by the Royal Institution of Great Britain and their first-ever collaboration with the Royal Albert Hall. The Engineering and Physical Sciences Research Council (EPSRC) funded the research that forms the basis of the lecture and helped to fund the development of the show.

Audience participation will feature strongly throughout the event. Volunteers will be encouraged to sit on a specially made 2 metre-diameter whoopee cushion – the largest in the world – to demonstrate exactly how wind instruments work. The physics involved when whoopee cushions make a noise is the same as blowing through the mouthpiece of a saxophone, for instance (although the sound produced is quite different!). Trevor's whoopee cushion will also be assessed at the

event for a place in the Guinness World Records.

The audience will also be encouraged to make a noise to show their approval – or disapproval – when Professor Cox uses pitch-shifting and other state-of-the-art acoustic technology to give two ‘live’ pop acts a musical makeover: ‘Phluffy Nice’ is a solo singer in the classic boy band mould, while ‘Grim Reaper’ are a close harmony group who sing in a barber’s shop style. Trevor Cox will explore whether technology could have the potential to make or break their bid for fame and fortune.

Trevor will also describe his ‘BadVibes’ project which aims to find the ‘worst sound in the world’, and will outline an initiative to discover how rooms can be designed to make music more beautiful and speech easier to understand. Both of these projects are funded by EPSRC.

“We want the children attending this unorthodox event to go away with a real sense that science in general, and acoustic science in particular, is intriguing, relevant and fun,” says Professor Cox, who is an EPSRC Senior Media Fellow. “From a serious point of view, they’ll have a much better understanding of the role that sound plays in their lives.”

Source: Engineering and Physical Sciences Research Council

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