



CHILD'S PLAY

Babies have the ability to recognise pure tones, but lose it in later life, say researchers. Fortunately, there are ways to ensure your children stay in tune

WORDS BY JESSICA WERB

There's one in every school music class: the child who can sing a perfect A, knows what key *Twinkle Twinkle Little Star* is in, and can pluck notes out of the air at will. He's the child the music teacher does little experiments on, playing random notes on the piano for him to name from behind a screen. He's the little prodigy with perfect pitch, the envy of anyone who has ever struggled through a sight-singing exam.

Young Michael Newman is such a boy. The eight-year-old son of Amanda Newman, a music teacher at Musicale Music School in Harpenden, he began playing the cello at five. Soon afterwards, according to his mother, his perfect pitch became apparent.

"I first noticed he had perfect pitch after he had been learning the cello for a short time," recalls Amanda. "He would say, 'That was an A' or 'That was a D'. At the dinner table one night, he tapped his pudding bowl with his spoon and said, 'That's a D'. Now, if he is listening to the radio, he'll be able to say what key a piece of music is in."

Michael's sister, six-year-old Emily, is also musical and plays the violin, but does not have perfect pitch. Amanda puts Michael's ability down to some long-buried hereditary

factor. "I think he's just been born with it," she says. "Maybe there's a distant relative in our family who had it."

Yet Michael's skill may not be as unique or mysterious as it seems. Recently, scientists have suggested that perfect pitch ability is not nearly as random as we may have been lead to believe. In fact, every single one of us appears to have been born with a certain amount of perfect pitch – what researchers call 'absolute pitch' – and, under the right circumstances, that skill can be cultivated right through childhood and into adulthood.

In February, psychologist Jenny Saffran, assistant professor of psychology at the University of Wisconsin-Madison, presented convincing evidence of innate absolute pitch in babies to the American Association for the Advancement of Science.

Professor Saffran and her team found that eight-month-old babies could recognise changes in pitch where adults could not. The researchers played sequences of notes to the infants until they lost attention and looked away from the source of the notes. When the same sequence was played at a different pitch, the babies again paid attention, indicating that what they were listening to sounded new to them. The adults who listened to the notes, however, were unable to tell the difference between similar sequences played at different pitches.

"The babies could tell when there was a musical transposition, but the adults could not," explains Professor Saffran, herself an amateur singer, who, incidentally, does not have perfect pitch. "The infants were listening to absolute pitches," she explains.

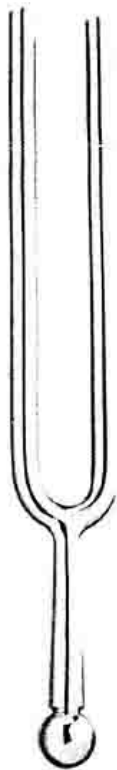
Saffran believes that babies who grow up into adults with perfect pitch do so because they are exposed to music and musical games that make use of their early absolute pitch ability. "To maintain this skill, you have to make pitch relevant," she says. "The younger you are when you start learning an instrument, the greater the likelihood that the ability will stick around."

A chat to any children's music teacher is enough to confirm the professor's theory. Betty Power is a music teacher based in Cambridge who specialises in the Suzuki and Kodaly methods of teaching, both of which are used to introduce young children to music. Suzuki, developed in Japan, is based on the principle that very young children can learn music by ear, in the same way that they learn language. Kodaly, a Hungarian teaching style, exposes children

'ONE NIGHT, HE TAPPED HIS PUDDING BOWL WITH HIS SPOON AND SAID, "THAT'S A D"'

FIVE PITCH TIPS

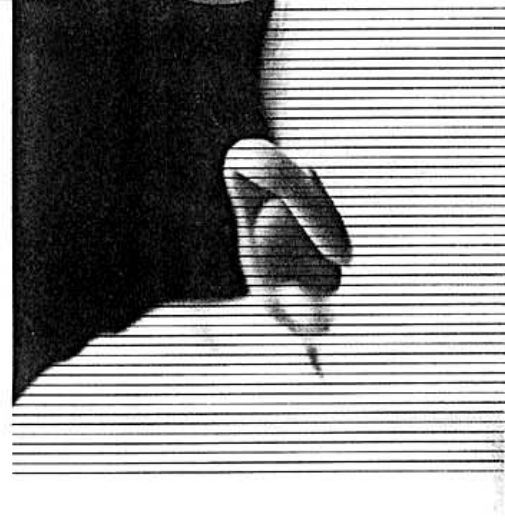
- 1 Play a note on an instrument, keep the note in your head, and sing it out loud 10 minutes later**
- 2 Play pitch-matching games with your children, tapping objects and seeing who can most closely match the pitches**
- 3 Make up songs to go with everyday activities; even sing scales as you climb the stairs**
- 4 Sing the beginning of your favourite piece of music and check the recording to see how close you were**
- 5 Start your day by singing a certain song, trying to start on the same note every morning. When you've mastered it, change the note you began on**



PERFECT



A



to music through song games, memory work and pitch. During her music classes, Power says she has had some 'surreal' experiences, especially in her parent and baby classes.

"There was one activity where I had taken out a tuning fork and went around the room playing it for the parents and babies," she says. "A few minutes after I had put it away, this beautiful, clear sound rang out. It was an 18-month-old baby singing a perfect A from the tuning fork. It just showed the wonderful capacity of children to absorb anything in their environment."

David Vinden, director of the Kodaly Centre of London and professor of Kodaly musicianship, says he has witnessed many examples of absolute pitch being acquired in childhood through specific practise and exercise. He thinks that Michael Newman may simply have been more interested in trying to recognise notes than his sister.

"I used to teach seven- to 18-year-olds at the Purcell School of Music in Bushey," he says. "And I would check them to see which ones had perfect pitch when I started. At first, about 30 per cent of the children had it, but by working with them for 20 minutes a day, first thing in the morning, I unlocked it in about 80-90 per cent of the students."

While Vinden's claims to have taught almost all his students to recognise a B flat when they heard it might induce scepticism, it's worth noting that, despite not having perfect pitch himself, both of his children – daughter Maiko, 13, and son Theo, 10 – do.

"Maiko was brought up on Suzuki from the age of three and developed an excellent memory, while Theo did Kodaly from the age of five," says Vinden.

Further afield, the professor's experience has been duplicated on a national scale. In Japan, where the Suzuki method is standard practice in most schools, at least 50 per cent of children have absolute pitch. So perhaps

the question to ask is not whether we are born with absolute pitch, but why we lose it.

Daniel Levitin, a professor of psychology at McGill University in Montreal, Canada, offers some clues. A former rock music producer from California, who later turned to music psychology, Levitin explains that there are many circumstances where the ability to recognise different tones as unique may have its disadvantages.

"In speech communication, it is important to ignore absolute information and instead concentrate on relative sounds," Levitin says. "If the absolute pitch of speech was what contained the message, then we wouldn't be able to understand children, because their speech would be at a higher pitch."

"And in music, it's more important to concentrate on the relative pitches, rather than the absolute pitches – it's the space between notes that makes the music, not the individual notes themselves. Relative pitch is what you want as a musician."

Levitin makes the surprising observation that absolute pitch is – in the real world – a more primitive than sophisticated skill. There are many animals, he says, that display absolute pitch skills, including songbirds, macaques, and even wolves.

"Wolves use absolute pitch to figure out who is in their pack and who is not, and some songbirds don't recognise their own songs if they are transposed and played back to them," Levitin says. "Generally, our brains work with absolute recognition – we can identify different colours, for example – but we lose absolute pitch ability because it's not so important," he concludes.

Professor Saffran agrees with Levitin's assessment of the value of absolute pitch. "Unless you work as a musician, where remembering pitch could be useful, or are learning a tonal language like Vietnamese or Chinese, where pitches tell you something

'WOLVES USE ABSOLUTE PITCH TO FIGURE OUT WHO IS IN THEIR PACK AND WHO IS NOT'

about the meaning of words, remembering the pitch of a word can be very distracting."

As if to prove the point, there are some circumstances when perfect pitch can prove more of a curse than a blessing.

"Perfect pitch could be a disadvantage if you are playing music on an instrument that has been deliberately tuned differently, or you are singing in a choir where the pitch often tends to creep upwards," says Dr Ian Cross, a music psychologist at Cambridge University. "In the '70s and '80s, for example, the Berlin Philharmonic started moving their tuning upwards to make it sound brighter, and if you had perfect pitch that could be quite annoying to listen to."

Nevertheless, most musicians would not hesitate to see the advantages of having the ability to recognise pure tones. And, like most things in life, they say the earlier it's learned, the easier it is. So for those hoping to bring up the next generation of Yo-Yo Mas and Joshua Bells, Betty Power offers the following advice. "With a very young child you can use musical play, but you can't be formal about it," she says. "When the child wakes up, just start the day with singing songs and clapping, and join music with natural activities that children do. Later on, as the child gets older, things can become more formal. It has to be something that parents and children do together."

Then she adds the most important words of all: "Above all, you have to make it fun, or the joy of making music is lost." ■