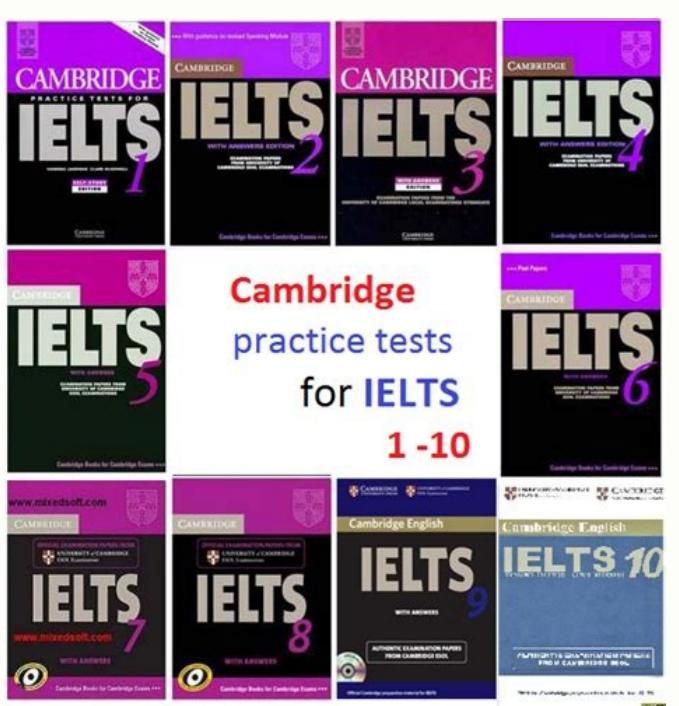


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A Hearing impairment or other auditory function deficit in young children can have a major impact on their ability to learn communication, resulting in a detrimental effect on their ability to learn at school. This is likely to have major long-term effects for the individual and the population as a whole. The [World Health Organization](#) has found research carried out over two decades that 4–10% of children in the country are affected by [hearing loss](#).

B A preliminary study in New Zealand has shown that classroom noise presents a major concern for many pupils. Noise levels in schools are increasing, and the proportion of children with hearing loss, poor cognitive, academic and mechanical skills in combination with other risk factors contribute to the number of children unable to concentrate in the classroom. Education researchers McInroy and Soll have also suggested that recent trends in learning often involve collaborative interaction of multiple minds and tools as much as individual possession of information. This all amounts to heightened activity and noise levels which have the potential to be particularly serious for children experiencing auditory function deficits. Noise in classrooms can only exacerbate their difficulty in comprehending and processing verbal communication with other children and instructions from the teacher.

C Children with auditory function deficits are potentially failing to learn to their [potential](#) because of major levels generated in classrooms. The effects of noise on the ability of children to learn effectively in typical classroom environments are now the subject of increasing concern. The [International Agency of Noise Control \(IANC\)](#), on the advice of the World Health Organization, has established an International working party, which includes New Zealand, to evaluate noise and vibration control for school rooms.

D While the detrimental effects of noise in classroom situations are not limited to children experiencing disability, those with a disability that affects their [processing of speech and verbal communication](#) could be extremely vulnerable. The auditory function deficits in question include hearing impairment, [severe speech disorders](#) (ASD) and attention deficit disorders (ADHD/ADD).

E Autism is considered a neurological life-long disorder that causes [discrepancies in the way information is processed](#). This disorder is characterized by interfering problems with social interaction, social communication and social interaction. According to [Autism NZ](#), the effect of the ability to understand and relate in typical ways to people, situations and objects in the environment, and understand or respond to sensory stimuli. Autism does not allow learning or thinking in the same ways as in children who are developing normally.

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READING PASSAGE 1

You should spend about 20 minutes on Questions 1–13, which are based on Reading Passage 1 below.

MAKING TIME FOR SCIENCE



Chronobiology might sound a little futuristic – like something from a science fiction novel, perhaps – but it's actually a field of study that concerns one of the oldest processes life on this planet has ever known: short-term rhythms of time and their effect on flora and fauna.

This can take many forms. Marine life, for example, is influenced by tidal patterns. Animals tend to be active or inactive depending on the position of the sun or moon. Numerous creatures, humans included, are largely diurnal – that is, they like to come out during the hours of sunlight. Nocturnal animals, such as bats and possums, prefer to forage by night. A third group are known as crepuscular: they thrive in the low-light of dawn and dusk and remain inactive at other hours.

When it comes to humans, chronobiologists are interested in what is known as the circadian rhythm. This is the complete cycle our bodies are naturally geared to undergo within the passage of a twenty-four hour day. Aside from sleeping at night and waking during the day, each cycle involves many other factors such as changes in blood pressure and body temperature. Not everyone has an identical circadian rhythm. 'Night people', for example, often describe how they find it very hard to operate during the morning, but become alert and focused by evening. This is a benign variation within circadian rhythms known as a chronotype.

Scientists have limited abilities to create durable modifications of chronobiological demands. Recent therapeutic developments for humans such as artificial light machines and melatonin administration can reset our circadian rhythms, for example, but our bodies can tell the difference and health suffers when we breach these natural rhythms for extended periods of time. Plants appear no more malleable in this

