

How acoustically friendly is your learning environment

# Contents

- How acoustically friendly is your learning environment..... 1
- How "listener friendly" is your room? ..... 3
- Factors Influencing good listening ..... 3
  - Distance..... 3
  - Noise ..... 3
  - Reverberation / echo ..... 3
  - Other factors influencing children's listening ..... 3
- Improving your listening environment ..... 4
- Acoustically friendly checklist ..... 5

## How "listener friendly" is your room?

Language development starts early in life and literacy skills are directly related to auditory development. Children may spend up to 45 % of their time in classrooms in active listening situations. Improved listening conditions help children to become better readers, aid understanding and improve their literacy and social skills.

We need to make speech clearer for children - not necessarily louder.

## Factors influencing good listening

**Distance** between the children and the speaker. The closer the listener and the talker are, the louder their voice will be. Varying distances makes it difficult to hear consistently well.

**Noise** within the room – children chattering, scraping chairs, noisy heaters & pipes, projectors, household appliances (washing machines, driers etc), fish tanks. Outside noise – from neighbouring classrooms & corridors, traffic noise, gyms, toilets flushing and hand drier noise. Noise will affect the child's ability to hear speech clearly. Children need the speakers' voice to be at least 16dB louder than any competing background noise for good listening.

**Reverberation / echo** sound reflects off hard surfaces such as walls, floors, ceilings, glass & desks – this can interfere with speech by masking or distorting important speech sounds.

Children need a much quieter listening environment than adults to hear clearly. Their auditory neural pathways do not mature fully until about the age of 15 so they find it difficult to predict and fill in gaps as adults do. Their experience of language & vocabulary is limited so they are less able to use context to guess what is being said. We must not assume that they can and understand spoken language in the same way that we do. We have a lifetime of listening experiences to help us – they do not.

## Other factors influencing children's listening

- Hearing difficulties whether permanent, transient or fluctuating can make it difficult for children to follow speech in a room with poor acoustics.
- Hearing aids & Cochlear Implants amplify (make louder) all sounds not just speech.
- Children with poor concentration, learning difficulties, and impaired vision may also find it difficult listening in poor acoustic conditions and may give up trying altogether.

## Improving your listening environment

- Cover hard surfaces with softer absorbent materials – curtains, carpets, cushions etc.
- Put felt in equipment trays, have blinds half closed not fully open. Close doors to other rooms.
- Discourage shouting within the room. Actively encourage children to speak quietly at times.
- Use old tennis balls cut in half to reduce noisy scraping of chair legs.
- Use hearing aids effectively together with FM (radio) systems in the classroom for those children who benefit from their use.
- Use a CSFS (Classroom Soundfield System) to maximise listening for all children.

**Complete our checklist and make adjustments to your listening environment where negative scores are recorded, where you can.**

## Acoustically friendly checklist

### Room descriptors

high ceiling -	low ceiling +	open plan -	enclosed room +	well-fitting doors +	poorly fitted doors(s) /doors left open -	double / triple glazing +
-------------------	------------------	----------------	--------------------	-------------------------	---	---------------------------------

### Noises within the room

computer monitors & printers -	old strip lighting -	positive classroom management of pupil behaviour +	mp3 players mobile phones -	PowerPoint projector -	children talking -
workshop machinery -	scraping chairs and table legs -	clattering pens and pencils -	wall heaters -	central heating pipes -	noisy fans ac -

### Noises outside the room

playing field noise -	road traffic -	neighbouring class noise -	dining hall -	gym noise -	toilets/hand driers corridor noise -
--------------------------	-------------------	----------------------------------	------------------	----------------	--

### Speaker / listener distance or speaker / listener with hearing difficulty

1m +	2m +	4m+ -
---------	---------	----------

### Amplification technology

effective use of hearing aids +	cochlear implant +	effective use of radio aids +	additional leads/ adaptors (tv, computer) +	classroom Soundfield system +
------------------------------------	-----------------------	----------------------------------	---	-------------------------------------

### Final score

<i>positive</i> responses = good acoustic environment	<i>negative</i> responses = poor acoustic environment	more <b><i>negative responses than positive</i></b> responses = improvements needed
--	--	--