

The Listening Brain: A Hearing Scientist's Perspective On Classroom Noise

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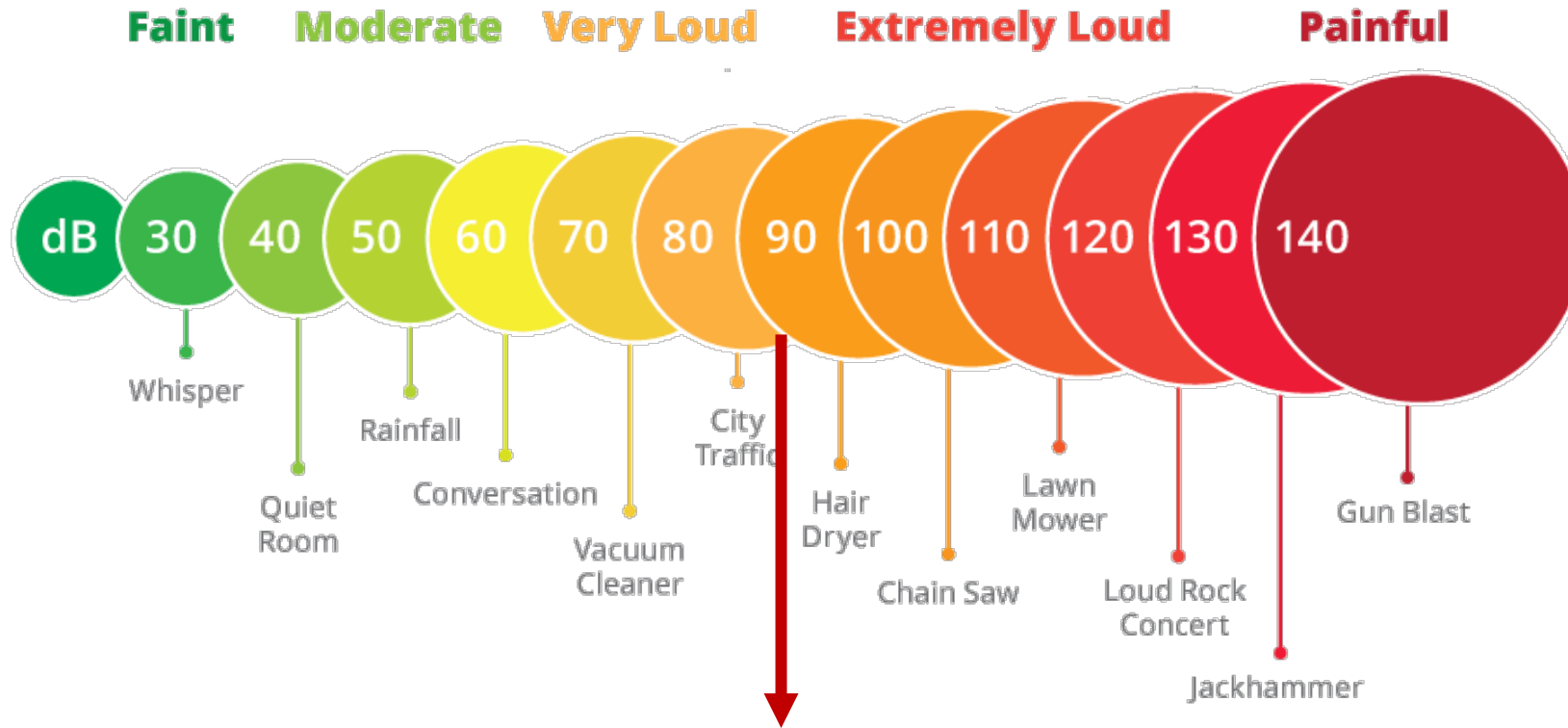
Research and Practice | 3rd of July 2026



Classroom noise

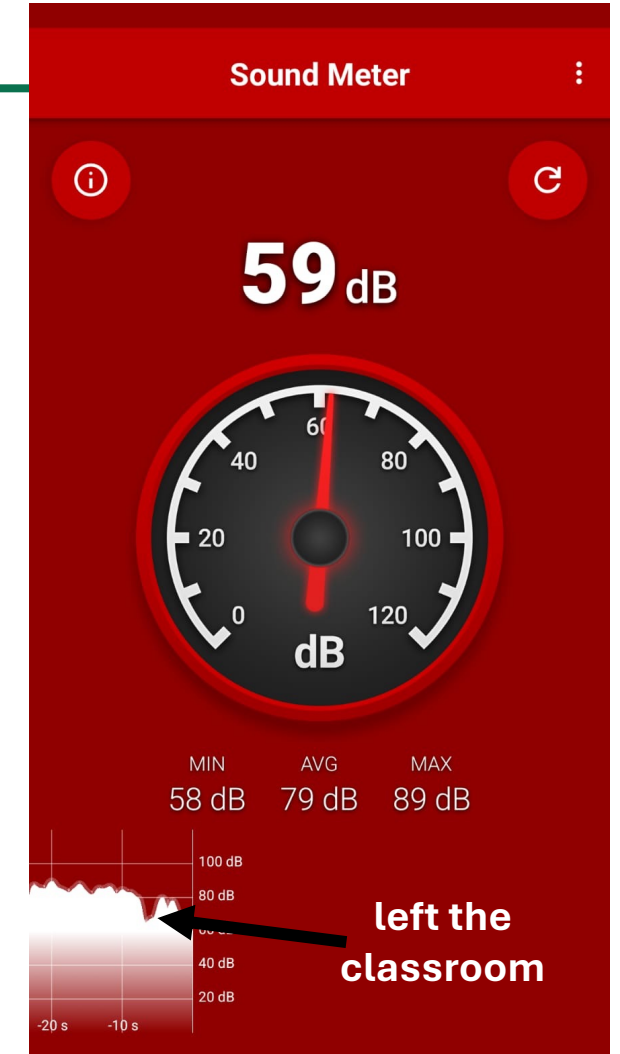


How loud are sounds?



Occupational standard: 85dB for 8 hours → Permissible Exposure Limit

>85 dB use hearing protection

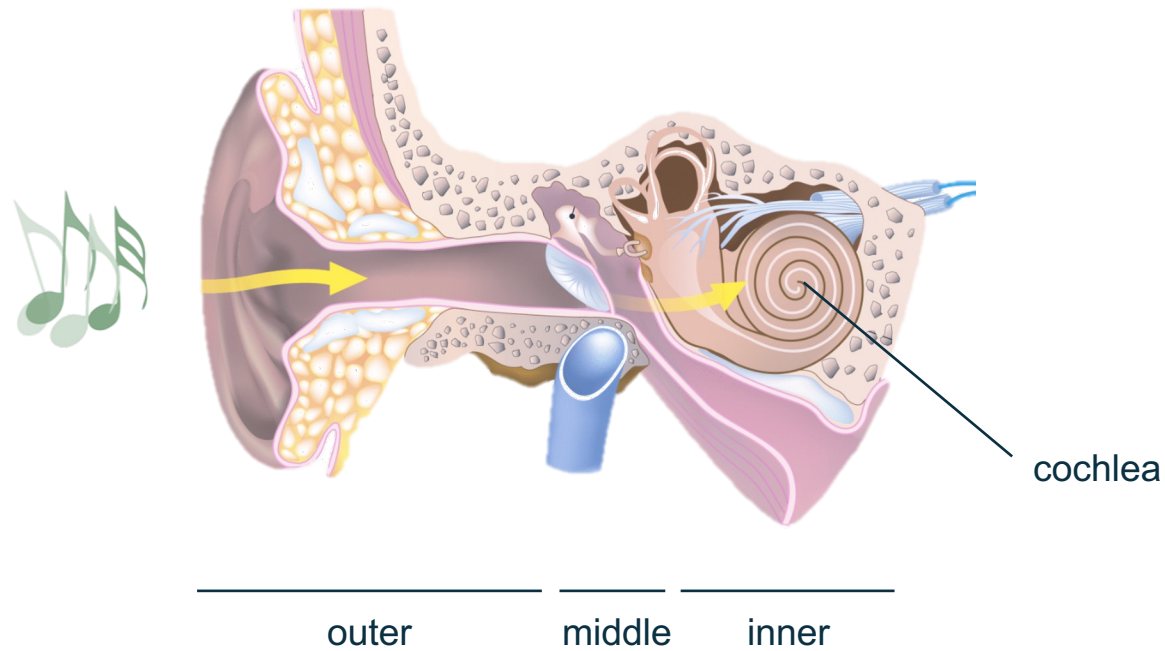


Free app: Sound Meter

Where are sounds processed in the brain?



From our ears to our brain



Successful listening



Where is the sound coming from?

→ locating a sound in space

Which voice actually matters?

→ identify the correct speaker

Boost the voice

→ brain amplifies the speaker, effectively turning it up

Block out background noise – continuously!

→ turning down all noises

→ much harder when it is speech, as it competes with similar brain resources

solving the cocktail party phenomenon

Two perspectives: kids and teachers

Kids perspective



Teacher perspective



Kids perspective

- Kids not born with the ability to hear speech in background noise
- Young brains struggle to tune into one voice and filter out the rest
- The brain systems for filtering do not mature until the teens
- Huge inter-individual differences
- Can it be trained (e.g. music)?

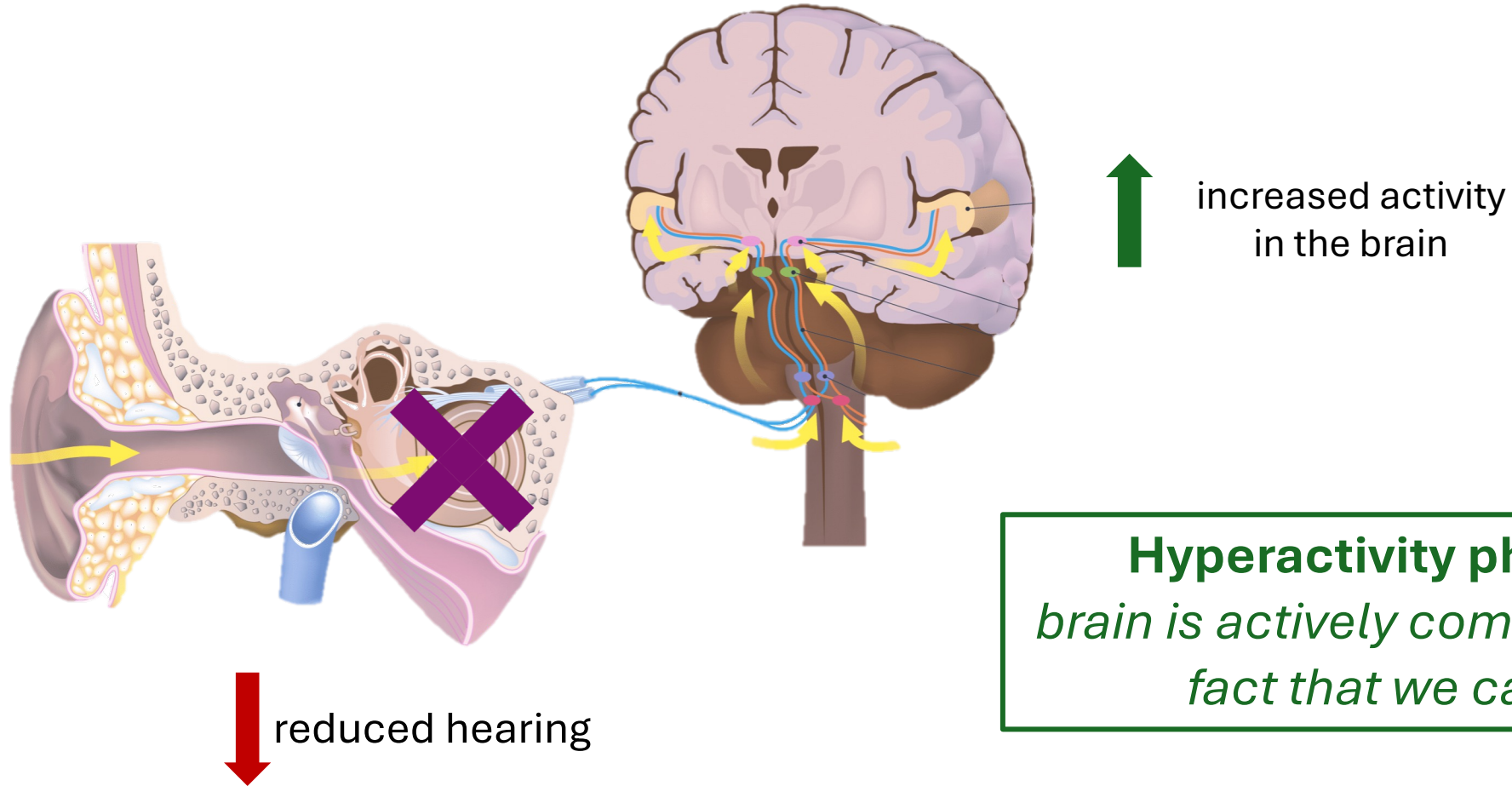


Teacher perspective

- Solving the cocktail party phenomenon is automatic
- Solving the problem while managing the room
- Listening effort builds up throughout the day
- Filtering ability starts to change with age (too, again)

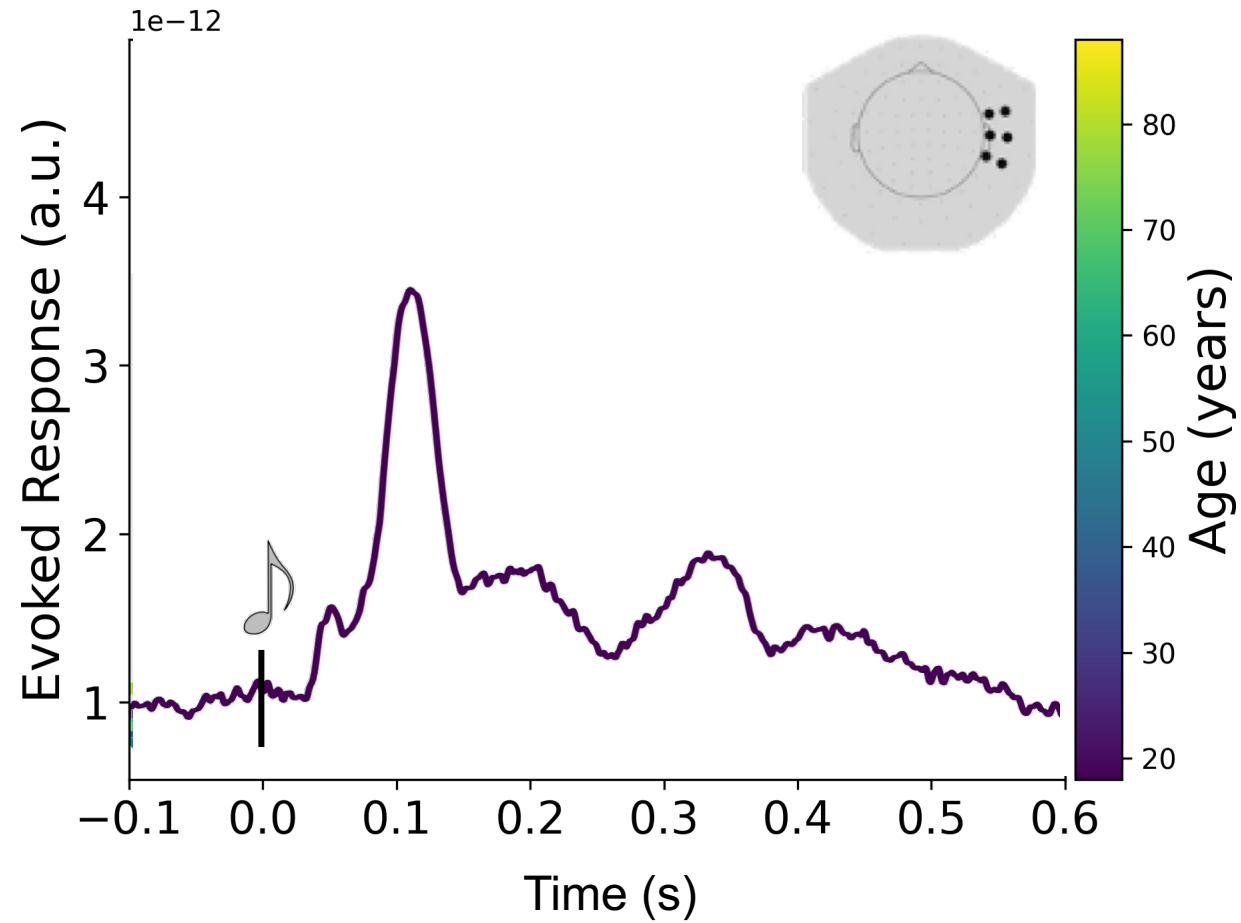


What happens in the brain with age?

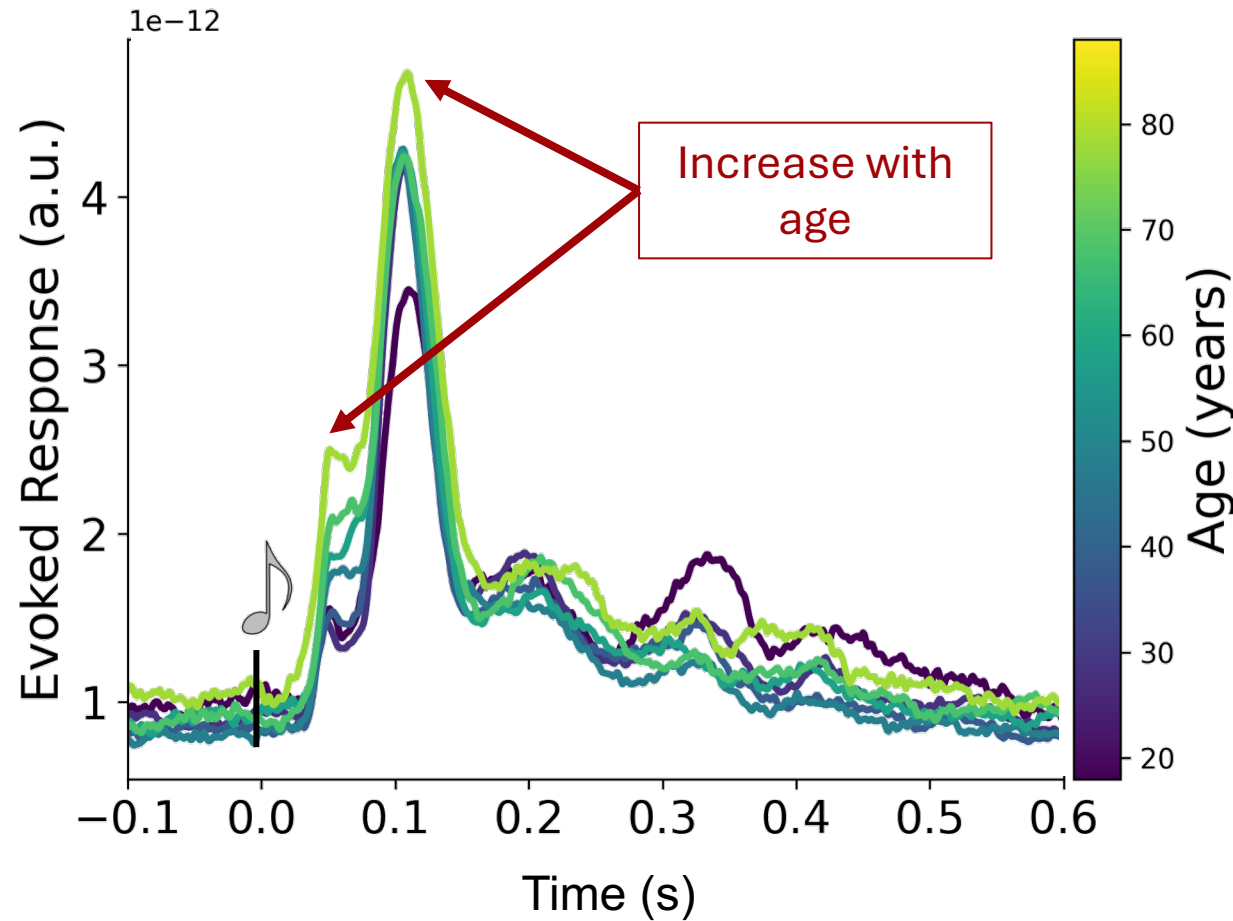


Hyperactivity phenomenon:
brain is actively compensating for the fact that we cannot hear

What happens in the brain with age?



What happens in the brain with age?



brain works harder for every single sound or noise you hear (in a classroom)

Solving the same problem

Separating relevant sounds from noise → but everyone has their own challenges solving this task

Kids perspective



filter mechanism still being built

Teacher perspective



filter overloaded by competing demands

filter "breaking down" with age

Reading for You: Noise & Impact on Children



The screenshot shows the top navigation bar of the ISEY website. On the left is the ISEY logo (I, S, E, Y in colored circles) and the University of East London logo with the tagline 'Pioneering Futures since 1898'. The navigation menu includes 'About us', 'Research', 'Consultancy & Training', 'News', and 'Resources'. On the right are 'Contact Us' and 'Get Involved' buttons. Below the navigation bar is a large blue banner with the text 'NOISE & IMPACT ON CHILDREN'. Underneath the banner is the heading 'Our campaign to denoise nurseries'. The text below the heading states: 'Young children learn through listening, interaction, and connection. But many early years environments are noisier than we realise. Our campaign to denoise nurseries explores how everyday sound environments shape communication, attention, and learning in the earliest years of life. By working alongside educators and nursery communities, we aim to support practical, evidence-informed changes that help create calmer, more communication-friendly spaces for babies and toddlers.' To the right of the text is a video player thumbnail for 'The Hidden Impact of Noise - Background Noise' by the Institute for the Science of Early Years & Youth. The thumbnail features a pink background with a child's head and the text 'Did you know that we aren't born with the ability to hear?' and 'Ansehen auf YouTube'.

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NOISE & IMPACT ON CHILDREN

Our campaign to denoise nurseries

Young children learn through listening, interaction, and connection. But many early years environments are noisier than we realise.

Our campaign to denoise nurseries explores how everyday sound environments shape communication, attention, and learning in the earliest years of life. By working alongside educators and nursery communities, we aim to support practical, evidence-informed changes that help create calmer, more communication-friendly spaces for babies and toddlers.

The Hidden Impact of Noise - Background Noise
Institute for the Science of Early Years & Youth

Did you know that we aren't born with the ability to hear?

Ansehen auf YouTube

Jessie Ricketts & Courtney Hooton
→ work on vocabulary learning in noise

Reading for Kids: A world of sound

Frontiers for **Young Minds**



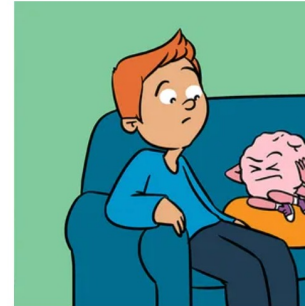
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Thank You

