

Handy Handouts®

Free informational handouts for educators, parents, and students

Do You See What I Hear?

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Go for a walk in your neighborhood and listen to the sounds around you. Perhaps you'll hear a bird singing or the wind rustling through the leaves in the trees. Maybe you'll hear a lawnmower humming or children laughing and splashing in a backyard pool. But what would you do if you heard someone shout, "Hey!"? Most likely you would turn towards the source of the sound in order to figure out why someone was trying to get your attention. Your ability to detect where a sound is coming from is called sound localization.

Our Amazing Brains

So how does sound localization work? Sound waves travel through the air and reach your ears at slightly different times (depending on which ear is closest to the source of the sound). The difference is not big enough that you will notice it, but your brain does! Your brain uses that time difference, along with other cues it gets from the sound signal, to determine where the sound comes from. While that may seem simple, it is actually a very complex process! We just don't think much about it because sound localization happens naturally.



Importance of Sound Localization

Is sound localization important? Yes! Here are just a few of the benefits we receive from this amazing process:



- **Safety** – It is critical for your safety to be able to determine where a sound is coming from – especially if that sound is one that warns of danger! Sirens, alarms, loud booms (and other noises) can signal that danger is approaching. In many of these situations, you want to move away from the source of the sound and consequently the source of danger.



- **Clarity** – The same system that helps us locate the source of a sound can also help us focus on the most important sound signals at any given moment. So if someone is speaking to you in a loud restaurant, knowing where the speaker's voice is coming from helps our brains filter out background noise and allows us to hear a speaker better.



- **Enjoyment** – Have you ever been to a movie theater and listened as a spaceship zoomed across the screen or a car zipped from one side of the screen to the other? The sound effects you hear in these "surround sound" movies come from our brains' abilities to detect the slight differences in when sound signals reach our ears.

If your child has difficulty recognizing the source of sounds, or has difficulty hearing sounds in general, talk to your pediatrician or family doctor. After discussing your concerns, your doctor may refer your child to an audiologist for a hearing evaluation. For more information on this topic, see Handy Handouts #163 "[What Is an Audiologist?](#)," #417 "[Is There a Difference Between Hearing and Listening?](#)," and #485 "[Hearing Loss in Young Children.](#)"

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