



# Handy Handouts®

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## FM Systems—Devices that Help Us to Hear

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A *Frequency Modulation System* or *FM System* is a type of assistive listening device. Assistive listening devices are pieces of equipment that help individuals maximize their ability to hear, especially in difficult, or noisy, situations. For children, the classroom environment is one place that can be particularly noisy. Not only do classrooms often have poor acoustics (sound quality in a space), but they also have lots of background noise, like fans, air conditioning, moving desks/chairs/feet, talking from other students, and outside sounds, like traffic. All of these sounds compete with the teacher’s voice. These noises can make listening and learning extremely challenging, *especially* if a student has a hearing impairment or an existing disorder, such as auditory processing, attention deficit hyperactivity disorder, or autism.

### ? How Does an FM System Work?

An FM system helps make the sound of the teacher’s voice louder than the competing background noises. To do this, the teacher wears a *microphone*, which attaches to a *transmitter*. The

microphone picks up the teacher’s voice then transmits it to the receiver. The receiver brings the sounds to the student’s ears. An FM system can also work with hearing aids.



There are two types of FM Systems—Personal and Sound Field. Personal FM systems include *behind-the-ear (BTE)*, where a receiver is built into a hearing aid, and *body-worn* where a receiver is attached to walkman-style headphones. A sound field FM system amplifies (makes louder) the teacher’s voice through loudspeakers. With a sound field FM system, all of the students in the room receive the teacher’s amplified voice over the present background noise.

### ? How Does an FM System Help?

FM systems help to maximize a student’s hearing and learning abilities for success in the classroom. FM systems can help by:

- Reducing distractions, such as background noise.
- Increasing understanding of speech, especially if the teacher’s back is turned.
- Improving attention to a task.
- Decreasing listening effort, therefore helping to reduce fatigue.

An educational audiologist can select, evaluate, and monitor an FM system for a student(s) to use at school. The educational audiologist can also provide instruction to the teacher and other school staff members on how to use the device.

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