

# Let's Talk About...

## Hearing Tests

This handout explains how we measure sound, what sounds people normally hear, and how your child's hearing is tested. It also explains hearing loss and what you can do if your child has hearing loss.

### What are the parts of sound?

Every sound has two parts: frequency (also called pitch) and intensity (or loudness).

Frequency is how high or low a sound is. A bass drum, thunder, and a man's deep voice are low-frequency sounds. A high-pitched whistle, squeal, and a child's voice are high-frequency sounds.

Intensity is how loud or soft a sound is. If a sound is loud, it has a high intensity. If a sound is soft, it has a low intensity.

### How are sounds measured?

Frequency is measured in hertz (Hz) [hurts]. A low-frequency sound is about 500 Hz or lower. A high-frequency sound is about 2,000 Hz and higher.

Intensity is measured in decibels (dB) [DES-uh-buls]. A high-intensity (loud) sound has a high decibel level. A low-intensity (soft) sound has a low decibel level. The sound of people talking is usually between 40 and 60 dB. Sounds that are louder than 90 dB are uncomfortable and sounds louder than 110 dB can be painful.

As you see on the chart on [page 2](#), the sounds around us have a wide range of frequencies and intensities.

### What can humans hear?

Humans can usually hear frequencies between 32 and 32,000 Hz at intensities of 10 dB and louder. The most important frequencies for speech and language are between 250 and 8,000 Hz.

### How is hearing tested?

There are many ways to test hearing. The most common are:

- Behavioral testing in a sound booth
- Auditory brainstem response (ABR) testing
- Otoacoustic emission (OAE) testing



### Behavioral testing

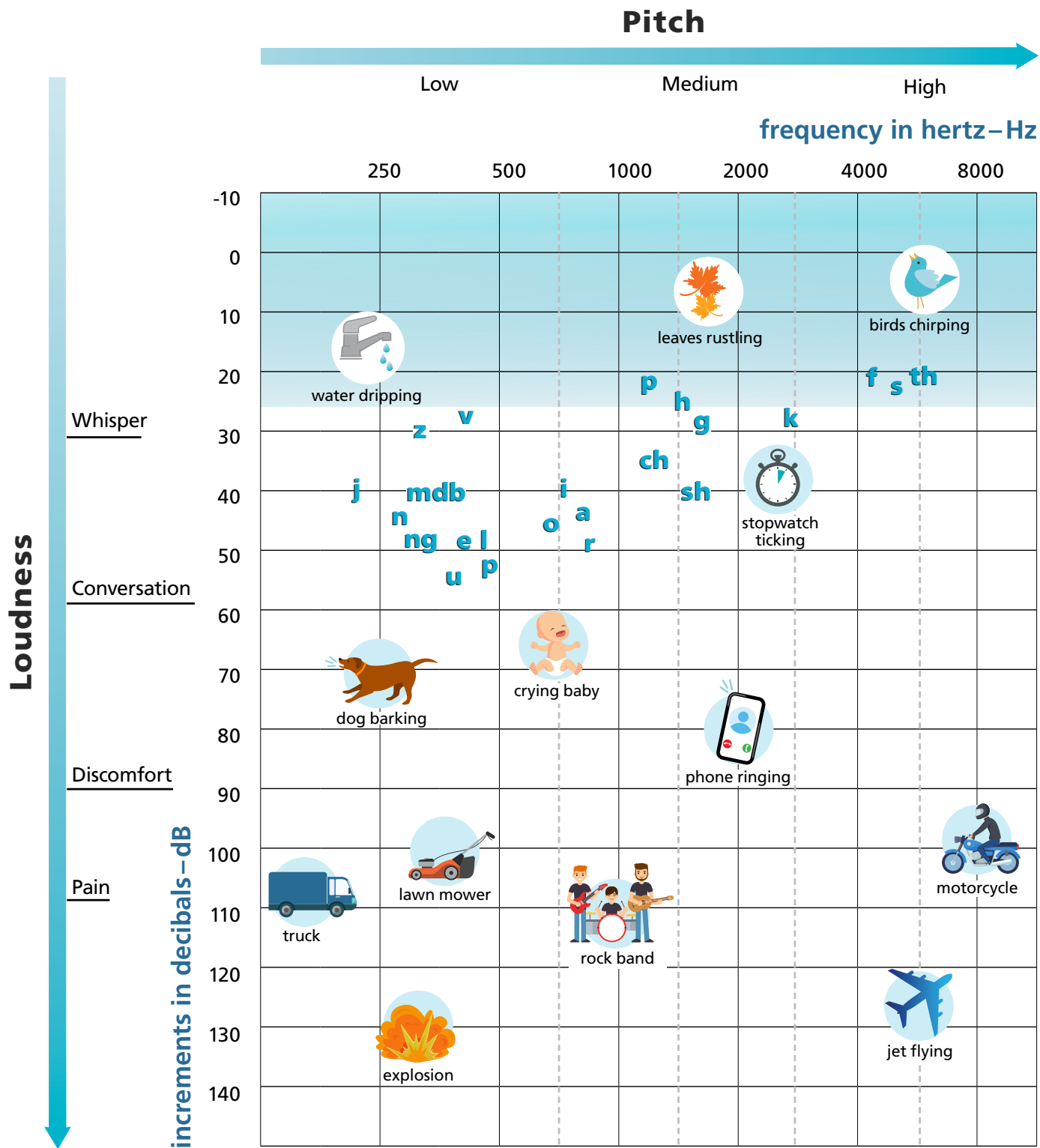
Children and sometimes even babies can have their hearing tested in a sound booth with headphones or earbuds. During a behavioral hearing test, an audiologist (a healthcare professional who tests hearing and helps people with hearing loss) checks to see if your child can hear different frequencies with each ear. The range of hearing tested in the sound booth is usually 250 to 8,000 Hz.

### Auditory brainstem response (ABR) testing

When a baby or child cannot do a behavioral hearing test, they may need to have an auditory [AW-di-tawr-ee] brainstem response (ABR) test. Babies can have this test while they are sleeping. Sometimes an older child needs medication to help them sleep so they do not move during the test.

For ABR testing, sounds are played in your child's ear. The test measures how the hearing nerve responds to these sounds. The range of hearing tested with ABR is 250 to 4,000 Hz.

# Audiogram



## Otoacoustic emission (OAE) testing

Otoacoustic [otto uh-KOO-stik] emission (OAE) testing is another way to test hearing in babies and children. This is how newborn babies in Utah have their hearing tested. For this test, a small probe is placed inside the ear. This is not painful. OAE testing measures how the inner ear responds to sounds.

If an OAE test shows there is a problem, there may be other reasons besides hearing loss, such as a blockage in the ear. This test does not show how much hearing loss your child has (mild, moderate, severe, or profound).

## What are some types of hearing loss?

- If your child can hear low frequencies but not high frequencies, they can hear most of what people say. However, they may not hear high-frequency sounds like the “sh,” “t,” and “f” sounds. Without hearing aids, your child may not learn to use these sounds because they cannot hear them.
- If your child has a mild or moderate hearing loss in all frequencies, people talking may sound like a whisper.
- If your child has a severe or profound hearing loss in all frequencies, they may need hearing aids or a cochlear [KOK-lee-ur] implant to hear people talking. Your child’s doctor or audiologist can explain how these devices work.

## Where do I start?

You are the most important advocate for your child, and you will have a team of people to help you along the way. Your team may include the following people:

- Audiologist
- Early intervention specialist
- Teacher
- Speech and language therapist
- Doctor

Your team can help you:

- Answer questions
- Decide what needs to be done
- Find the help you need
- Get information to make the best decision for your child

## How do I choose a communication option for my child?

When your child has hearing loss, there are many ways to communicate with them. You will need to decide which option is best for your family. You can talk with your doctor and other parents to help you make your decision.

## What if I have other questions?

If you have any questions about your child’s hearing, talk to your child’s audiologist or doctor. To schedule an appointment at any of these facilities, please call 801-662-4949:

### Primary Children’s Main Campus

100 North Mario Capecchi Drive, 1st Floor  
Salt Lake City, UT 84113

### Primary Children’s Rehab Bountiful

280 North Main Street  
Bountiful, UT 84010

### Primary Children’s Rehab Taylorsville

3845 West 4700 South #102  
Taylorsville, UT 84119

### Primary Children’s at Riverton

3741 West 12600 South, 3rd Floor  
Riverton, UT 84065

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