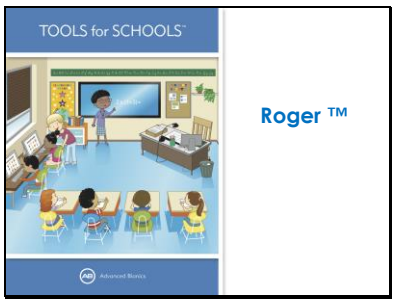
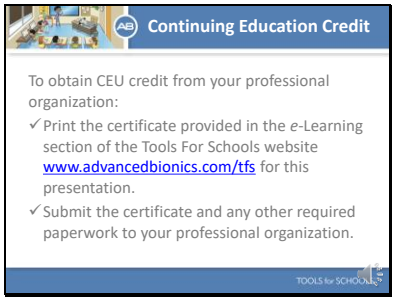
Slide 1



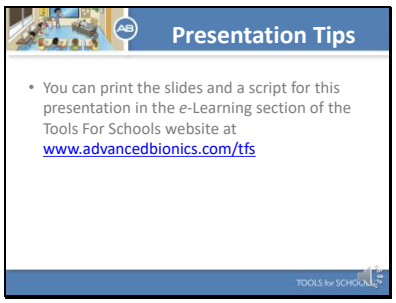
Hello and thanks for joining us to learn more about cochlear implants. Today's presentation provides information about how to use Phonak's Roger system with Advanced Bionics technology. Are you feeling like you need more information to help your student use Roger successfully in the classroom? You may be feeling a bit intimated about having to oversee your student's equipment or you may just need a review. Either way, you will benefit from today's presentation as we review how to use Roger with Advanced Bionics sound processors.

Slide 2



If you would like to submit for continuing education credits to your professional organization please print out the certificate of completion provided at the TFS website under e-Learning for this presentation. Submit the certificate with any other required information to your professional organization.

Slide 3

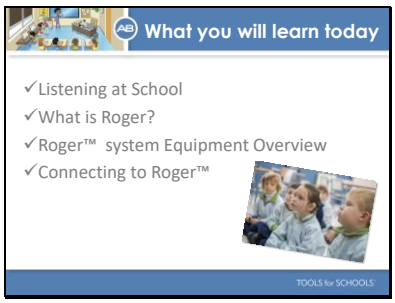


If you would like to print out slides and take notes or print out a script so you can follow along with the audio, please visit the companion materials section for this presentation in the e-learning section of the TFS webpage.

Slide 4

AB is dedicated to helping people with hearing loss hear their best. AB works in partnership with Phonak. This partnership has allowed AB to offer unique technological advances to help people with hearing loss hear better in the most challenging listening situations. From offering technologies that grow with children as they learn to listen and make sense of the world of sound…
To helping adults get back to connecting and communicating with the important people in their lives, AB is dedicated to providing the unique hearing technologies that can help recipients achieve their hearing goals.

Slide 5

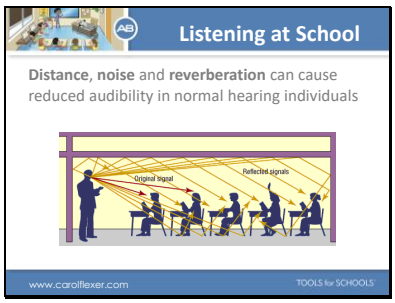


Here are the topics we are going to discuss today. I'll give you a moment to read them. First let's begin with a short overview about why students with hearing loss require additional technology to hear their best in the classroom.

Slide 6

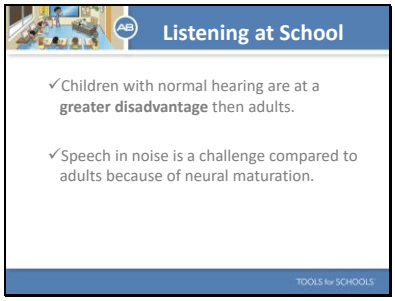
As you are aware, a modern classroom is made up of many elements which create a dynamic learning environment. From lectures, to team projects, to activities which include various forms of multimedia, it's a place designed for both students and teachers to participate, engage, discuss and truly interact. The classroom can be a challenging place to hear and learn if you have hearing loss environment with hearing loss. Distance, background noise and reverberation make it difficult to hear, even for students with normal hearing. The negative effects of this include such things as misunderstanding instructions, missing information, and fatigue.

Slide 7



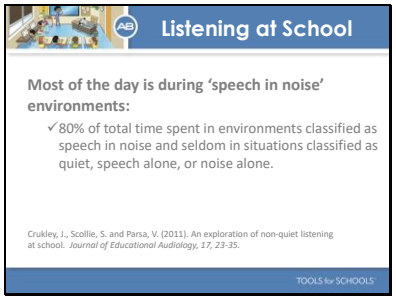
Even those of us with normal hearing are challenged when we are further away from the speaker or when a room is noisy or reverberates because sounds are bouncing off of hard surfaces. As a result, the speaker's voice becomes softer and distorted.

Slide 8



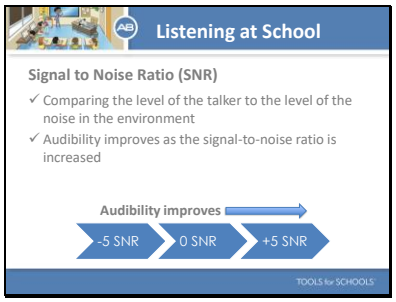
As we are all aware hearing well in a noisy environment is challenging. Did you know that for normal hearing children understanding speech in noise is more difficult compared to normal hearing adults? This is because the neural pathways to the brain that allow children to process and understand speech are not yet fully developed. Up until the age of five, children with normal hearing are still developing their ability to recognize and process speech. Situations with noise and distance can impede their understanding of what is being said as their ability to recognize sounds is still developing. Consider what this means for a child with a hearing loss who is trying to understand his or her teacher in a noisy classroom.

Slide 9



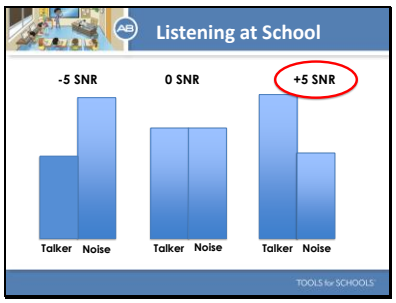
In fact, Crukley and colleagues evaluated listening in the school setting. For this study, the researchers took sound level meter measurements in daycare, pre-school, and school rooms throughout the day. The study found that the majority of a child's day, 80%, is spent in speech in noise environments.

Slide 10



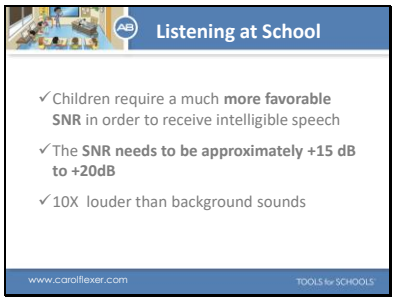
One term that often comes up when discussing noisy classrooms and how children with hearing loss can succeed is Signal to Noise Ratio. Signal to Noise Ratio is used to describe the volume of the talker compared to the volume of noise in the environment. Audibility improves with positive signal to noise ratios.

Slide 11



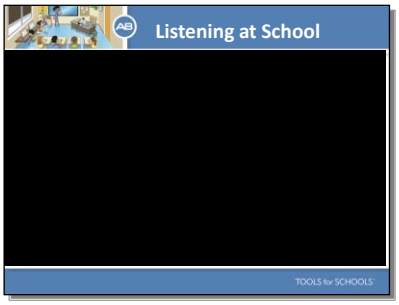
This slide does a great job of showing this concept visually. A signal to noise ratio of 0 means the talker and noise are the same volume. A signal to noise ratio of -5 means the noise is 5dB louder than the talker, and a signal to noise ratio of +5 would mean that the talker is 5dB louder than the noise. An easy way to think about this is that a positive signal to noise ratio will improve a child's ability to hear while a negative signal to noise ratio will make it more difficult.

Slide 12



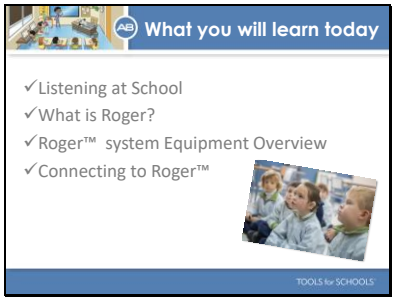
So as we just heard from Dr. Flexer, children with hearing loss require a much more favorable SNR in order to understand speech. In fact, children with hearing loss need speech to be approximately 15-20 dB louder than background noise which means speech needs to be about 10X louder than background noise for children with hearing loss to hear well. The only way to achieve this is through assistive technology such as Roger.

Slide 13



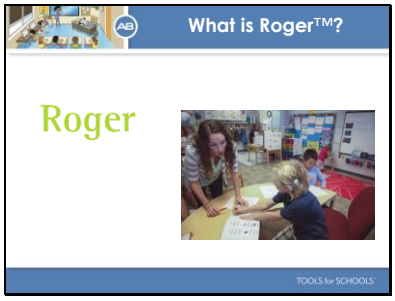
Here you see a link to a great video where Dr. Flexer discusses what signal to noise ration is and why it is important. The link is also provided in the companion materials section for this presentation. The video provides a short and simple summary of the concepts we just discussed.

Slide 14



Now that we understand why children require assistive technology such as Roger, let's move on and discuss what Roger is and how it works.

Slide 15

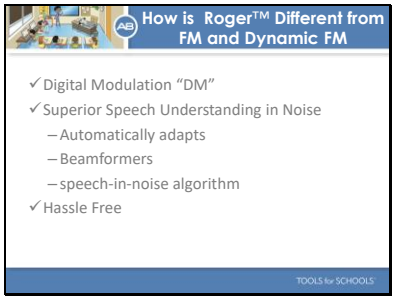


Roger was created for the modern classroom. It is a wireless system from Phonak that dramatically improves how well children can hear. It is designed to help students understand speech in noisy situations, and over distances by transmitting the speaker's voice directly to the listener. It works seamlessly with a wide variety of devices used in the classroom such as computers, tablets, and more.

Slide 16

Let's watch a short video that shows how Roger works in the classroom.

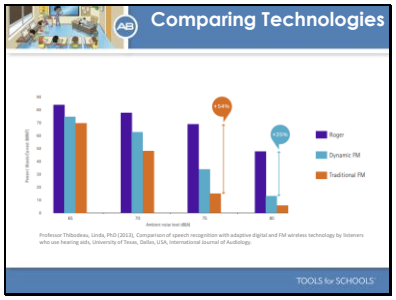
Slide 17



Many people wonder how Roger is different from traditional FM or Dynamic FM technology. Roger is considered a new digital standard, referred to as "DM". Roger provides superior speech understanding through its ability to automatically adapt to the listening environment through the use of beamformers and an advanced speech in noise algorithm. What does this mean? Roger microphones make use of intelligent formulas that continuously measure and precisely analyze noise levels, optimizing the signal to noise ratio. If the noise level in a student's

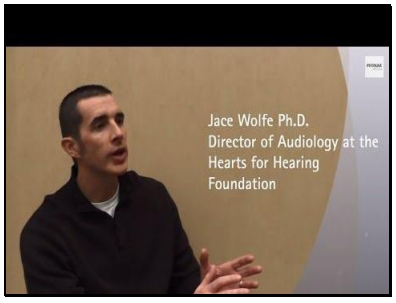
classroom increases, the volume of the Roger signal automatically increases in response. This means that the student is hearing optimally regardless of how the listening environment changes. Another huge benefit of Roger is that it is hassle free! There are no frequencies to program and manage, and devices are connected with a single click.

Slide 18



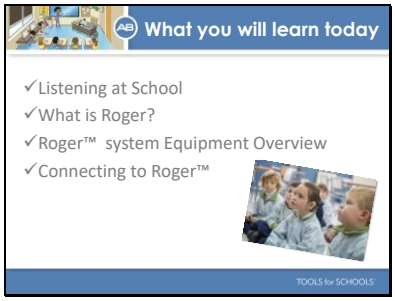
This slide summarizes the results of an independent study that compared FM, Dynamic FM, and Roger. You can see that children using Roger technology, whose results are in purple, performed significantly better than children using traditional FM or Dynamic FM especially at higher ambient noise levels. With improvements of up to 35% over Dynamic FM and 54% over other FM systems.

Slide 19



I wanted to pause here to provide you with a link to this interview with Dr. Jace Wolfe who is the Director of Audiology and Research at Hearts for Hearing. He gives a wonderful explanation of the improvements seen with the use of Roger technology. The link can also be found in the companion materials sections for this presentation. I highly recommend you take a few minutes to view Dr. Wolfe's comments.

Slide 20



Let's move on and review the equipment for the Roger system.

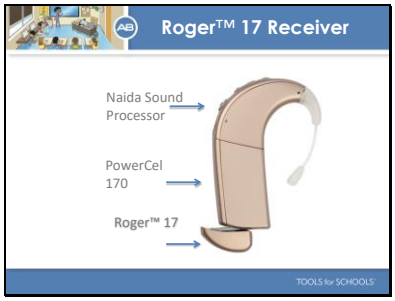
Slide 21

There are two parts to the Roger System. The microphone which is worn by the speaker and the receiver which is worn by the student. The microphone sends the speaker's voice wirelessly, directly to the student's receiver. This provides the student with the ability to hear well despite background noise and distance. Let's look at some of the receiver and microphone options used most commonly in schools.

Slide 22

There are 3 Roger receivers available for use with Advanced Bionics processors. A design-integrated receiver for the Naida CI called Roger 17, Roger X, and Roger MyLink.
Let's discuss each of these in more detail.

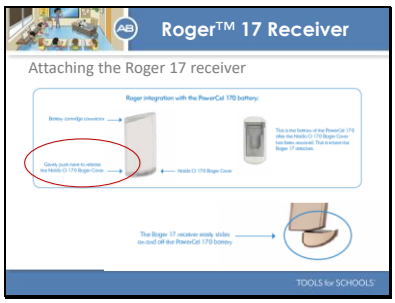
Slide 23



Roger 17 is the design-integrated Roger receiver for Naída CI. It allows Roger and Naida to connect wirelessly.
To use the Roger 17 receiver with the Naida you will need the following equipment:
A Naida sound processor set to a program appropriate for Roger use, a fully charged 170 PowerCel battery, and the Roger 17 receiver.

Keep in mind that the PowerCel mini 170 is NOT compatible with Roger 17. You must use the standard 170 PowerCel.

Slide 24

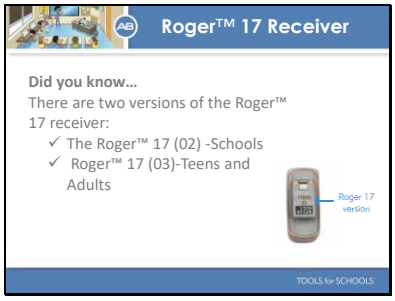


Connecting the Roger 17 receiver to the Naida is easy. Here you can see the PowerCel 170 battery. Take off the 170 Roger Cover by gently pushing on it and then attach the Roger 17 receiver by sliding it on until it clicks into place.

Slide 25

Here you see a screen shot of a great video from Phonak that show you an animation of how the Naida 17 connects to the Naida CI. The link is provided here as well as in the companion materials for this presentation.

Slide 26



Be aware that there are two versions of the Roger™ 17 receiver: The Roger™ 17 (02) and the Roger™ 17 (03). The version number can be found on the underside of the Roger™ 17 as pictured here. Roger™ 17 (02) is designed for schools and is compatible with all Roger™ microphones. Roger™ 17 (03) is designed for teens and adults. It is not compatible with all Roger Microphones.

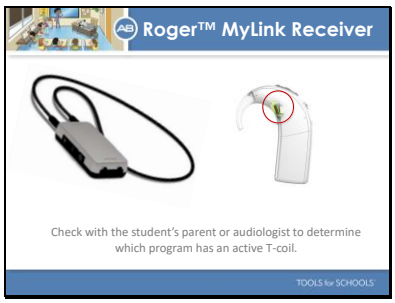
Slide 27

And for those students who are Bimodal there is an integrated Roger receiver for both the Naida Link UP and Naida Link RIC hearing aids. Roger 10 is for use with Naída Link UP. Roger 15 is for use with the Naída Link RIC. Students can connect Roger to both ears for stereo hearing and truly hear their best in the classroom.

Slide 28

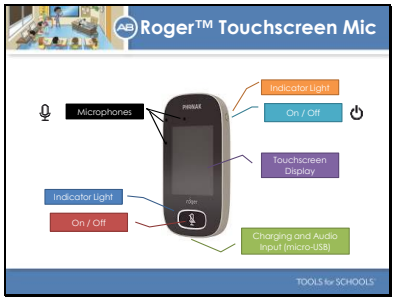
Now let's discuss the Roger X receiver. It can be used with both the Naida and Neptune sound processors. To use it with the Naida processor you will need the ComPilot. The Roger X plugs into the Europort of the ComPilot and wirelessly streams the speaker's voice directly to the student's Naida. And for students who are bimodal the ComPilot will also stream directly to a Phonak compatible hearing aid. To use the Roger X receiver with the Neptune processor it should be attached to the Europort of the Neptune Connect. We will talk more specifically about how to connect the Roger X for use with the Naida and Neptune later in this presentation.

Slide 29



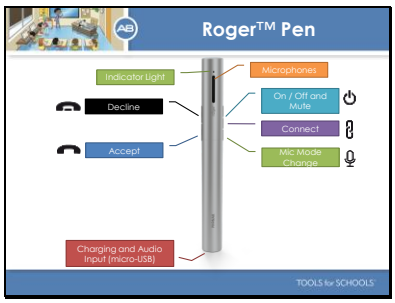
Finally, let's discuss the Roger MyLink. It is designed for use with the Naida CI's T-Coil. You will need to check with the child's parents or audiologist to determine if a T-Coil program is available. We will review how it works in more detail later in this presentation.

Slide 30



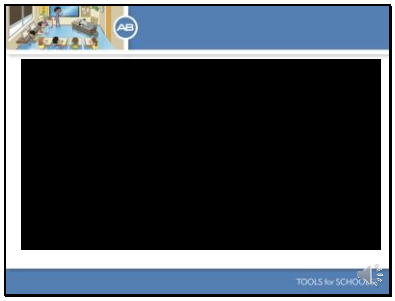
Now let's turn our attention to some of the Roger Microphone options. The Roger Touchscreen Mic is a simple and intuitive microphone that is made for use in the classroom. It has an easy to use touchscreen and offers different use configurations such as wearing it on a lanyard around the speaker's neck or placing it on a table for a small group project. Fully automatic microphone settings and clearly visible indicator lights make this microphone easily to use for both teachers and students.

Slide 31



Here is the Roger Pen. It is a small versatile microphone that can be used for various listening situations. It also features Bluetooth® connectivity so it can be used with the phone and any device that has Bluetooth capabilities. It is great for older children and teenagers as it allows for personal management of Roger.

Slide 32

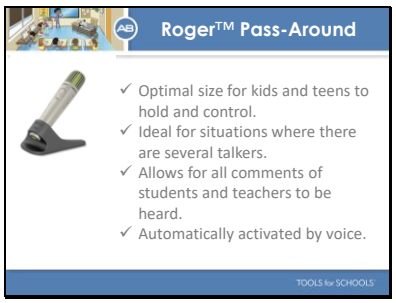


Let's watch a short video where Emme talks about how she uses the Roger pen.

Slide 33

And let's watch Ethan as he talks the benefits of the Roger pen.

Slide 34



Here is the Roger Pass-around. The Roger Pass-around is designed to enhance classroom discussions so that not only teachers, but all students are heard clearly. With an appealing design it is the optimal size for kids and teens to hold and fully control. It is ideal for situations where there are several talkers as the Roger Pass-around can be handed from one person to another or placed in a stand. This allows for all comments of students and teachers to be heard.

Slide 35

This is the Roger Multimedia Hub. It can be connected to any multimedia device used in a classroom – ranging from smartboards and TVs to computers and tablets. When the Roger Multimedia Hub is used in a network, the new audio mixing feature allows a teacher's voice to be heard simultaneously with an audio signal.

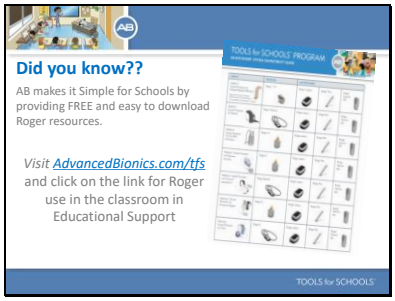
Slide 36

There are a lot of reasons why the Roger Select is one of the most advanced Roger microphone solutions available. The Roger Select features adaptive wireless transmission. And Multibeam technology for superior performance in noise. Roger Select can also stream TV and multimedia, and it features wideband Bluetooth connectivity for phone use.

Slide 37

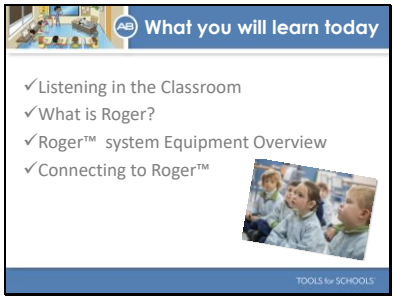
Here is a screenshot of another Phonak video that does a great job reviewing several of the microphone options we just discussed and how they are used in the classroom. The link will be provided in the companion materials for this presentation.

Slide 38



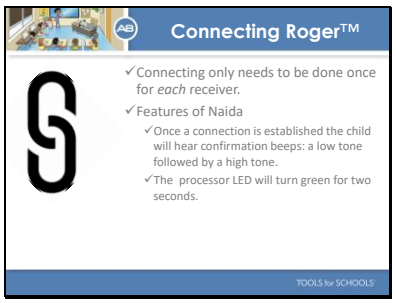
Did you know the Advanced Bionics tools for schools webpage has free and easy to download materials? Print the AB and Roger compatibility guide and keep it in the classroom for an easy to access reference. A link to this piece will also be provided in the companion materials section for this presentation.

Slide 39



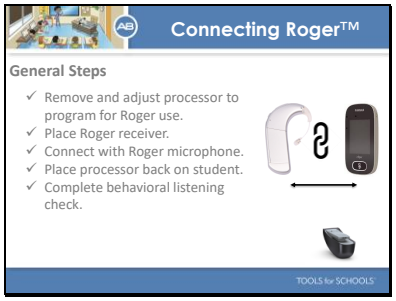
Now let's move on and discuss how to connect Advanced Bionics technology to Roger systems.

Slide 40



To establish communication between a receiver and a microphone(s), you must "connect" the devices. This is similar to pairing a Bluetooth device with your cell phone. This "connecting" only needs to be done once for *each* receiver so after a connection has been made, the next morning when the student walks in the door, you do not have not go through the connection process again. Powering on the device is all that is needed. I wanted to mention that for the Naida processor students will hear confirmation beeps, a low tone followed by a high tone, once Roger is connected. The processor LED will also turn green for 2 seconds to confirm connection with Roger. Let's talk more about how to connect each receiver type to the Advanced Bionics sound processors.

Slide 41



In a moment we will review how each receiver type connects with Advanced Bionics technology. Before we begin I want to give you a general overview. Remember, there are a few different pieces of equipment involved when connecting to Roger. The sound processor, the Roger receiver, and the Roger microphone. Always begin by removing the sound processor from the student and then adjusting the processor to the program designated for Roger. Next attach or power on the receiver. Now you will power on the Roger microphone and connect to the receiver. Place the processor back on the student. Reduce the volume

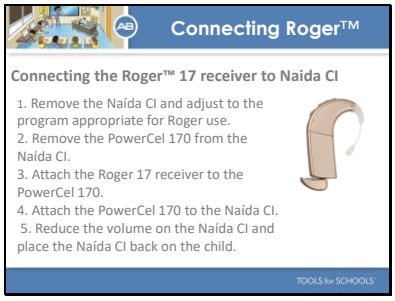
before placing it back on the student to ensure sound input will not be overly loud now that input from Roger has been connected. The last step is to complete a behavioral listening check to confirm all of the equipment is working.

Slide 42

To keep it simple, remember to work with the equipment in this order: Processor, Receiver, Microphone. Connecting Roger is as easy as 1,2,3.

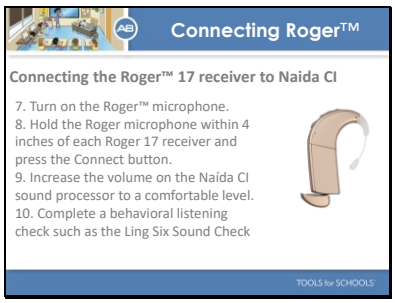
Let's look more specifically at how this works for the different processor types.

Slide 43



The steps for connecting the Roger 17 to the Naida CI are listed over the next 2 slides. Begin by removing the Naida from the child and adjusting the processor to the appropriate program for Roger us. Next remove the battery. Attach the Roger 17 to the battery and then reattach the battery to the Naida. Reduce the volume and place the processor back on the student. Keep in mind most older children are able to manage these steps on their own.

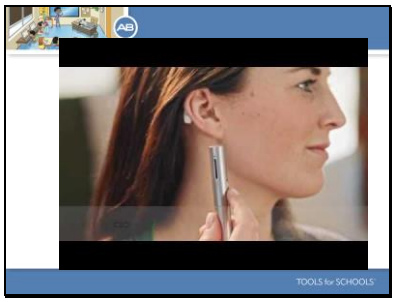
Slide 44



Once the Naida is positioned back on the student you can turn your attention to the Roger microphone. Begin by turning it on. Hold it within 4 inches of each Roger 17 receiver and press the connect button. This is when the student should hear the connection confirmation beeps and you will see the green LED on the Naida illuminate for 2 seconds. Now slowly increase the volume on the processor to a comfortable level. Finally, verify the connection process has been successful with a behavioral listening check.

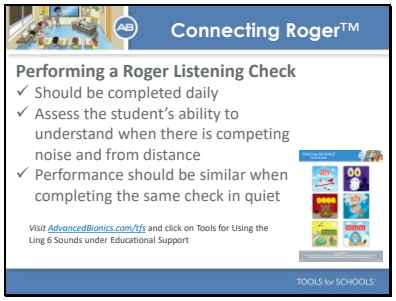
Remember this connection process only needs to be completed one time. When this student comes back tomorrow just attach the Naida 17 to the battery, adjust the processor to the correct program, and turn on the microphone.

Slide 45



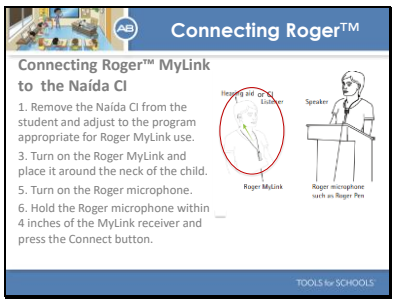
And here is a short video that shows how easy it is to connect the Roger Pen microphone to both an integrated receiver like the Roger 17. The end of the video also shows how to connect Roger Pen to the MyLink which we will discuss further in just a moment.

Slide 47



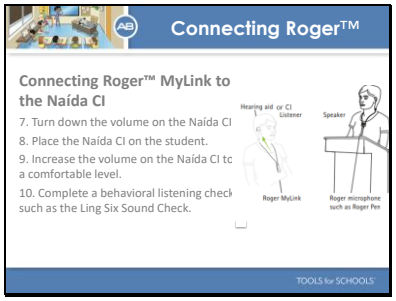
I want to also take a moment to highlight the importance of completing a listening check once your student is connected to Roger. Consider doing a quick check of the student's ability to understand speech through the Roger microphone while there is competing noise or standing at a distance from the student. Listening performance should be similar to when completing the same check in quiet from a close distance. You can use the Ling 6 sounds for younger children or even simple sentences for older children. If you would like to learn more about this fast and easy behavioral listening check visit the Tools for Schools webpage. We have instruction and fun flash cards you can download and print for free. These materials can also be found in the companion materials section for this presentation.

Slide 48



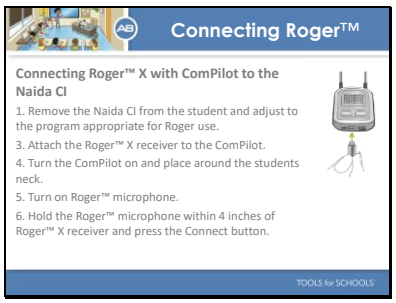
Now let's talk about how to connect the Roger MyLink and the Naida CI. As mentioned in an earlier slide this is done through use the of the Naida's T-coil which is located inside the processor. Begin by removing the Naida from the child and adjusting the processor to the program designated for use with Roger MyLink. This will be a program with an active T-coil. Next turn on the Roger MyLink and place it around the child as pictured here. Now turn on the Roger microphone and hold it within 4 inches of the MyLink receiver. Press the connect button.

Slide 49



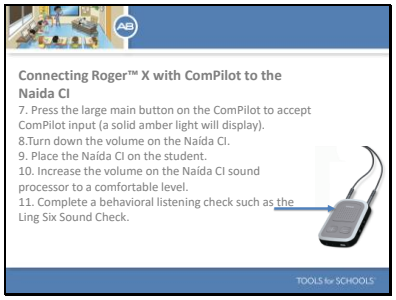
Turn down the volume on the Nida and place it back on the student. Slowly increase the volume until it is comfortable. Finally, complete a behavioral listening check.

Slide 50



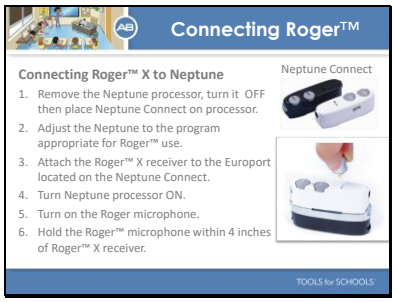
And here are the steps for using Roger X with the ComPilot and the Naida. Again, always begin by removing the Naida from the child and adjusting the processor to the proper program for Roger use. Now attach the Roger X to the ComPilot as shown here. Turn the ComPilot on and place it around the student on a lanyard. Turn on the Roger Microphone and connect it by holding it 4 inches from the Roger X receiver and pressing the connect button.

Slide 51



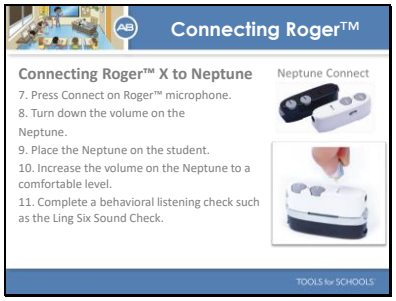
Press the large main button on the ComPilot. Turn down the volume on the Naida and place it back on the student. Adjust the volume until it is comfortable and complete a behavioral listening check.

Slide 52



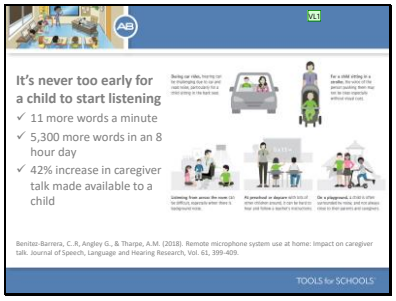
For those of you working with a student who has the Neptune processor, the Roger X is simple to use. As we have discussed begin by removing the processor and turn it off. You will need to attach the Neptune Connect if it is not already in place. Next adjust the processor to the program appropriate for Roger use. Attach Roger X to the Europort on the Neptune Connect. Turn on the processor. Turn on the Roger microphone and hold the microphone within 4 inches of the Roger X receiver.

Slide 53



Press connect on the Roger microphone. Turn down the volume on the processor and place it back on the student. Slowly increase the volume until it is comfortable and then complete your behavioral listening check.

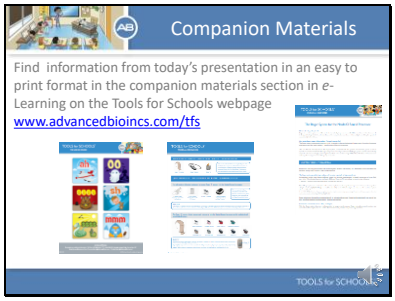
Slide 54



Finally, before we wrap up I'd like to point out recent research that shows the importance of Roger for babies and very young children. Roger benefits very young children in situations like the car, the stroller, or on the playground. Many of you may work in early intervention or a pre-school setting. Use of a Roger system at home provides preschool children with access to up to 11 more words a minute, compared to wearing hearing aids alone. That's approximately 5,300 more words in an 8-hour day and a 42% increase in caregiver talk made available to a child. As you can see

Roger use from the beginning ensures a child has full access to speech in their ever-changing noisy worlds.

Slide 55



You can find information from today's presentation in an easy to print format. Visit the eLearning section of the TFS webpage and look for the companion materials for this presentation. Download and print these materials so they are available for easy reference in the classroom.

Slide 56

Finally, before we end today's session I'd like to share a FREE resource offered by Advanced Bionics. The Tools for Schools and Tools for Toddlers programs offer everything you need to educate yourself and support students with cochlear implants. Make sure to visit the webpage and take advantage of all our free resources. Thanks for joining us today. Have a great day.