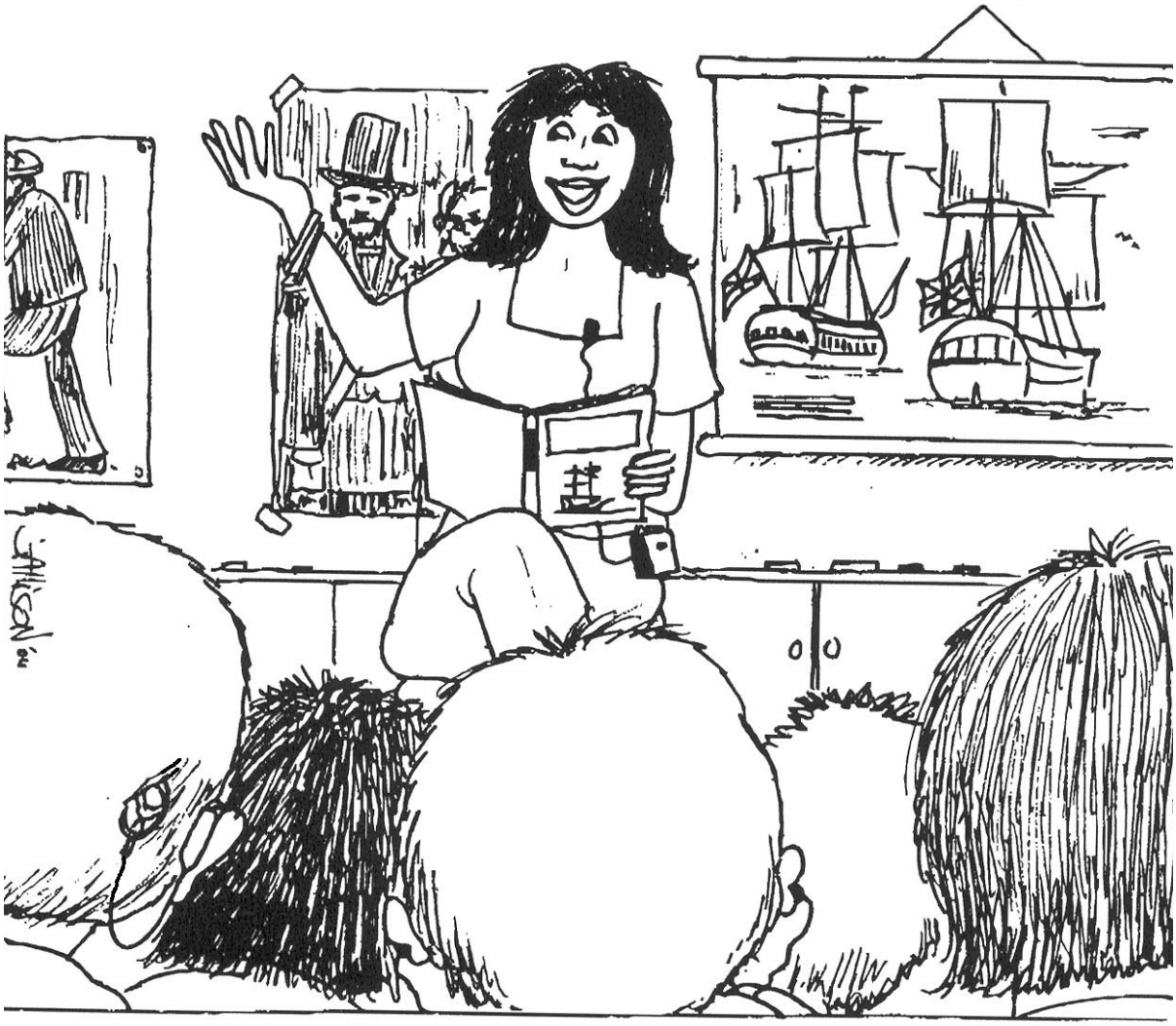
ARE YOU BEING HEARD?



INFORMATION and TEACHING TIPS
for teachers of students with a hearing loss

Deafness Foundation Victoria

Deaf Children Australia

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ARE YOU BEING HEARD?

INFORMATION and TEACHING TIPS
for teachers of students with a hearing loss

When deaf students are given the right support and provided with positive learning experiences, their potential is unlimited.

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2005

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INTRODUCTION

The aim of this booklet is to provide an introduction to working with deaf students in mainstream schools. There are many things to consider when working with deaf students, including the impact of the hearing loss on the student's speech and language, the student's social and emotional development, the teaching methods, the technical equipment to be used and the learning support needed.

This book can be used to obtain such information relevant to any student with a hearing loss who is being educated in a mainstream school, regardless of the degree or the type of hearing loss or the communication method used. We hope that you will use this booklet in conjunction with an individual or group deafness awareness session for your school. This can be organised through a Teacher of the Deaf in your area. If you wish to have more information on organising such a session and/or meeting the needs of your deaf students, please contact Deafness Foundation, Deaf Children Australia, an Advisory Visiting Teacher, a Visiting Teacher, an Itinerant Teacher of the Deaf or a Teacher of the Deaf.

The term *deaf* is used throughout this booklet to refer to all degrees and types of hearing loss. We are aware that many people prefer to use *deaf and hearing impaired* or *deaf and hard of hearing*, but for ease of reading, the term *deaf* to cover all students with a hearing loss was considered to be more appropriate.

About Deaf Children Australia

Deaf Children Australia responds to the needs of children and young people who are deaf and hearing impaired and their families; providing information, support services and educational resources. Deaf Children Australia is committed to a positive understanding of deafness as "a life to be lived" rather than a "problem to be fixed".

Deaf Children Australia became a national entity in 2004 in recognition of the lack of services in other states.

For more information:
www.deafchildrenaustralia.org.au

About Deafness Foundation

Deafness Foundation supports all people who are deaf or who have fluctuating or permanent hearing loss in Victoria and, through one of its related agencies, in all other parts of Australia. This occurs through programs of education and awareness, training and research, financial assistance and input to public policy. Its focus is on provision of the best possible opportunities and services and on raising the level of education and awareness of relevant issues in the general community.

For more information:
www.deafness.org.au

GETTING STARTED

An inclusive environment

How can the school ensure the school environment promotes inclusion? One of the most important things a school can do is to ensure principals and teachers have sufficient knowledge and skills to include deaf students. Deafness is invisible. This makes it very easy to overlook and underestimate the impact hearing loss has on the student's academic and social development.

To make sure deaf students are included in your school:

- Be open to new ideas.
- Be flexible in your approach to teaching.
- Model acceptance to other teachers and students.
- Ensure there is open communication with key people (see Team Work, page 11).
- Be prepared to learn as much as possible about deaf students.
- Seek advice if needed.
- Involve older deaf students in discussions about their education.

To make sure deaf students are included socially:

- Be aware of the communication difficulties that may easily arise between deaf students and their peers. These may not initially be obvious.
- Understand the impact that continual communication difficulties may have on the deaf student's self esteem and confidence.
- Work to ensure the deaf student is positively included in the social life of the school, both in and out of the classroom.
- Educate the whole school community about communication strategies to assist the deaf student.
- Encourage independence.

A positive experience

Having a deaf student in the school can be a very positive experience for everyone. New ways of communicating can be learned and innovative teaching methodologies can be investigated and implemented. The opportunity to make contact with a wide range of professionals and other people not normally associated with the school can lead to an overall enrichment of the school's ability to meet the needs of all students.

Attitudes and expectations

The attitudes and expectations that are held regarding the learning and behaviour of deaf students should be the same as those held for any student in the school. When deaf students are given the right support and provided with positive learning experiences, their potential is unlimited.

The whole school

Deaf students need to be seen as the responsibility of the whole school. It is important that all staff, including administrative staff, have the skills and knowledge to be able to communicate with the deaf student.

It is the school's responsibility to ensure that deaf students have opportunities equal with other students to participate in all activities within the school. This includes extra-curricula activities such as after school sport or musical events.

TEACHING AND LEARNING

Good teaching and learning strategies for students who are deaf are good strategies for all students. Any changes made will benefit all students in your school.

The following is a guide to teaching and learning strategies you can use to assist the deaf student. Every deaf student is different and you may find some strategies more appropriate than others.

Speech, language and communication

Students without a hearing loss usually start school with well developed speech and language. They have acquired language effortlessly since birth through listening to and overhearing those around them. They usually have a well developed general knowledge base and are able to use questions and discussions to further develop their language and general awareness. This in turn will be used by their teacher to develop their learning.

Students with a hearing loss generally find it more difficult to acquire language and general knowledge and may start school delayed in these areas. However this is not a reflection of their potential or ability. They have less opportunity to learn how our language system works and it is more challenging for them to acquire new vocabulary, concepts and expressions. In addition, they may have limited exposure to incidental learning.

Deaf students may understand the meaning of individual words within a sentence but may not understand the full meaning of the sentence. This applies to written, spoken or signed language.

In general the earlier the hearing loss occurs, the greater the impact, especially if the hearing loss is severe or profound and/or was diagnosed late.

Deaf students who speak may have difficulties saying some words or monitoring the loudness or pitch of their own voices. This is not a reflection of their intelligence.



Assisting the deaf student to understand spoken messages

Sometimes a deaf student may not follow what has been said.
If this is the case:

1. Repeat what has been said.
2. Say it in a different way.
3. Explain what is meant and give more information.
4. Simplify the message.
5. Clarify by asking a question so that the student can demonstrate understanding.

☑ **Handy hints: Assisting communication**

- Before beginning to speak, ensure that you have the attention of the deaf student.
- Speak clearly and naturally. Don't exaggerate lip patterns because this makes it more difficult to lipread.
- Avoid using unnecessary distracting hand movements when speaking.
- The further you are away from a deaf student, the harder it is for them to hear. The optimal distance between the speaker and the deaf student is approximately one metre.
- If the deaf student has difficulty understanding what is being said, say it in a different way.
- Go directly to the point so students are not confused.
- Stay in one spot when addressing students.
- Speakers should avoid standing with their backs to the window as this puts their faces in shadow.
- When working with an interpreter, position the interpreter so the student can see both the interpreter and the speaker at the same time.
- Avoid writing on the black/white board and talking at the same time.
- Make sure the room is well lit. If the lights need to be dimmed, give any instructions or comments beforehand.
- Avoid speaking when hands are near the face or if there is something in the mouth. Keep hair away from the face and keep beards or moustaches trimmed so they are not covering the mouth.
- If the deaf student is not looking at the speaker, call them by name or gently touch them on the arm or shoulder to gain their attention. Using the deaf student's peers to indicate when the speaker is about to begin is one way of getting their attention.
- Be aware lipreading is difficult as many words look the same on the lips, for example, 'mother' and 'brother', or are invisible, for example, 'coke.' The deaf student may gain information to support lipreading from the context of the message.
- Seat the student where they can see the speaker and as many of the other students as possible. The end of the second row is a good place. Seating all the students in a semi circle is ideal.
- Never believe the myth that a deaf student can hear when they want to. Different listening conditions mean that hearing is more difficult in some situations. Some deaf children may have a fluctuating hearing loss. This can be confusing to people who are not familiar with deafness and who may think the student is not really deaf.
- Never shout at a deaf student. It only distorts the message.

Inclusive teaching strategies

If the deaf student is having difficulty understanding the lesson, teaching styles may need to be changed or adapted. Most deaf students are very visually aware. Teachers can capitalise on this strength in the classroom by using visual strategies and resources to support spoken and written instructions and explanations.

☑ **Handy hints: Teaching strategies**

- Teach to individual rather than group needs. Adapt lesson plans to make them accessible and vary the assessment tasks if needed.
- Activate background knowledge before a new topic is introduced. Pre-teach and/or brainstorm any vocabulary needed before beginning a new unit of work.
- Move from the known to the unknown to assist deaf students to make links between what they know and new information.
- Visually show connections and links between different topics using mind maps, graphic organisers, flow charts, tables, diagrams, pictures and objects.
- Provide opportunities for repetition, reinforcement and practice of new vocabulary and concepts.
- Write key words and important instructions, questions and tasks on the black/whiteboard.
- Words that have multiple meanings, complex sentences or idioms may cause the student difficulty. These may have to be specifically taught.
- Intersperse direct teaching with other activities.
- If the deaf student has difficulty processing information, use shorter sentences and pause between sentences.
- Deaf students may have difficulty self-correcting their spoken or written language. They may not be able to see their own mistakes because they have not acquired the particular language rule.
- Spelling may be difficult for some deaf students as they may not have the phonological skills to be able to sound out words. Many deaf students rely on visual letter patterns to learn to spell and this strategy can be used when teaching spelling.
- Extend the student's language by using prompts, models and questions.
- Use strategies to aid reading comprehension, for example, predicting the content before reading. Use a variety of ways to demonstrate comprehension, such as cloze, sequencing, true/false statements.
- Assist the development of higher order thinking skills such as reasoning and inferring by explaining the hidden messages in the text.
- Dictation is very difficult for deaf students: they cannot read, take notes and watch the speaker at the same time.

Handouts:

- Type rather than hand write any handout. Think about the size of the text, the spacing on the page and its layout. Make sure the headings are clear.
- Follow a logical order with clear instructions.
- Include pictures and diagrams if possible and clearly label them.
- Clearly show the due date.

The auditory environment

Classrooms and other places where students group together can be very noisy. Noise levels can make it very hard to hear because of the way some hearing aid and cochlear implant microphones amplify sound. Background noise also makes it hard for students with conductive, very mild or unilateral hearing losses to hear.

☑ Handy hints: The auditory environment

- Use classrooms which have carpet, curtains and other coverings, such as cork notice boards, to absorb sound and reduce reverberation.
- Acoustic tiles on the ceiling will absorb background sound. Glue felt under pencil tins.
- Use single rather than double or open area classrooms so there is less noise.
- Be aware if there is outside noise or noise in the corridor. Shut the windows and doors if possible.
- Don't place the deaf student next to equipment which makes a noise, e.g. overhead projectors, heaters, air conditioners, or fish tanks.
- Add rubber tips to chairs and tables.

Group discussions

It is very difficult for most deaf students to follow group conversations and discussions in the classroom. The pace and number of speakers makes it difficult to keep up with the flow and exchange of information.

☑ Handy hints: Group discussions

- Develop whole class rules for group discussions. Ask the students not to talk with their hands or pens near or in their mouths, hands should be raised before speaking and only one person speaks at a time.
- When possible, repeat students' answers to teacher's questions, e.g. "Ashis said…" and summarise or re-phrase what has been said.
- If the deaf student has an FM system, ask the other students to hold the microphone when speaking. If this is not possible, repeat what the student has said through the microphone as above.
- Call on different speakers by name so the deaf student knows who will be speaking.
- At the end of the discussion, summarise or review the main points and write these on black/white board.
- If an interpreter is being used, allow for a short time lag between what is said and what is interpreted. The deaf student won't be ready to answer questions until the interpreter has finished signing. Make sure only one person speaks at a time. (See page 12 for more information).



Checking for understanding

Sometimes deaf students will miss information in the classroom but may not be aware of this. They may be reluctant to check or ask for clarification because they may not want to draw attention to themselves. Deaf students will often nod their head when asked if they have understood and this may be misleading.

☑ **Handy hints: Checking for understanding**

- If a student has not heard or understood the message, try repeating or rephrasing it. If the student has still not understood, repeat the message in a simpler way.
- Allow for silence between the time the information is given or question is asked and the time the student replies. They may need a little more time to process the question.
- Ask the student to explain what they have to do by saying: "Tell me what you have to do" rather than "Do you understand?" This will depend on the age and sensitivity of the student. Older students may prefer you to be more discrete.

Announcements

The deaf student may not hear or understand during large school assemblies, from a distance or over the public address system.

☑ **Handy hints: Announcements**

- Ensure any support staff relay the necessary information to the student rather than asking "Do you understand?"
- Arrange for one of the student's peers to tell the student the necessary information.
- Write the information on the blackboard or repeat any announcements made.
- During assemblies, encourage use of overheads or a PowerPoint display.

Assessment

Depending on the deaf student, a range of assessment tasks may be considered to allow them to demonstrate their understanding. Deaf students may need clarification of the language used in the question in order to understand what is required.

☑ **Handy hints: Assessment**

- Give the deaf student an alternative assessment task if necessary.
- Students who sign can give 'oral' presentations through an interpreter.
- Students who communicate through speech, but who have difficulty in projecting their voices or being understood, may be more comfortable presenting to a smaller group.
- Deaf students can be encouraged to use a variety of presentation modes, e.g. overhead projector, pre-recording, handouts or PowerPoint presentations.
- If the student makes grammatical errors in their written work, look at the content rather than the grammar when correcting it. Be sensitive and constructive in your correction of deaf students' written grammar.
- Ensure that the deaf student knows what must be covered and/or studied in any assessment task.
- Ensure the deaf student knows when any assignments are due.
- Give the deaf student copies of previous exam papers so they can see what is expected. Let them practise these.
- Allow time for pre-reading especially in exam situations.
- Ensure the deaf student knows when and where any assessments will be held.
- Discuss with a Teacher of the Deaf the use of an official clarifier in exams.

Audio-visual materials

DVDs, videos and television programmes are great learning resources. Many deaf students find it difficult, and some find it impossible, to understand the words spoken on the TV, radio and tape recorders through hearing aids and/or cochlear implants. The pace and complexity of what is said can also cause difficulties. 'Voice overs' on television are particularly difficult to follow.

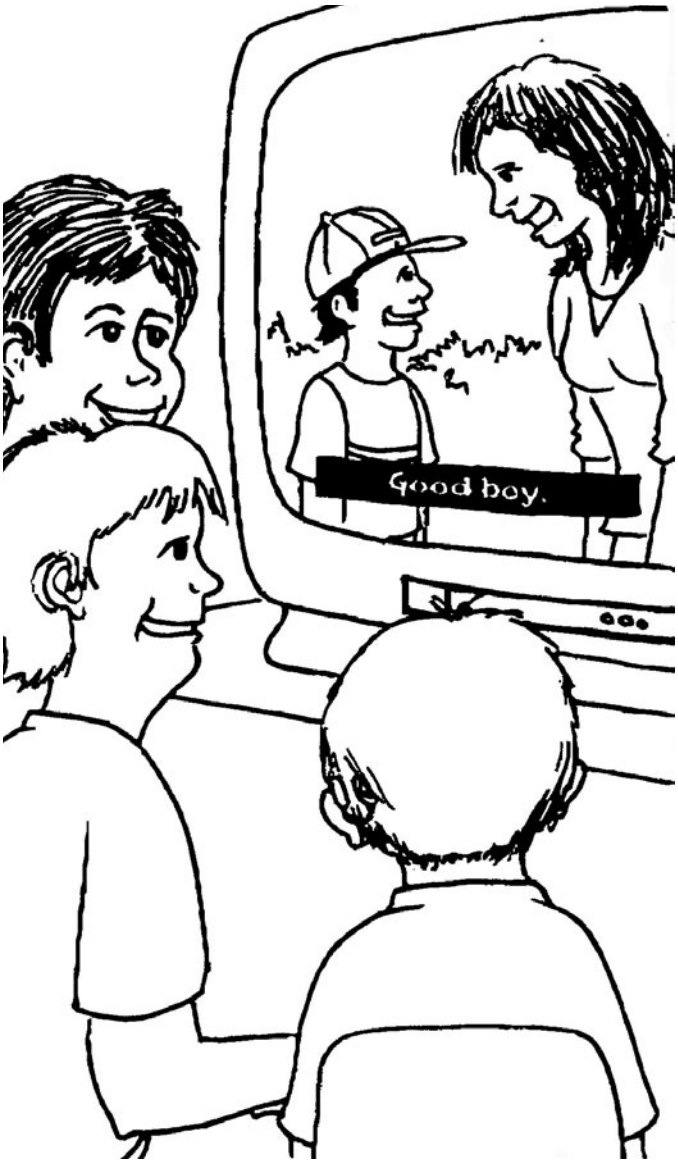
☑ **Handy hints: Audio-visual materials**

- Use resources with subtitles. Note: many DVDs, but not videos, have subtitles.
- Be aware some deaf students may find the reading of subtitles difficult.
- Try placing the microphone of the FM system near the sound outlet of the television or computer speaker.
- Allow any support workers to view the DVD or video beforehand so they are better prepared to explain to the student what is happening.
- Allow the student to watch the DVD or video again to consolidate understanding.
- Ask the support worker to take notes about the program for the student. Remember the student cannot watch and take notes at the same time.
- Interpreters can be used to support audio visual materials. Refer to page 12 for more information.
- Invest in a digital top box which will display subtitles on some TV programs. These are indicated as an "S" in TV guides.

Real time captioning

Real time captioning may assist deaf students in the classroom, especially those working at a senior level. What is said in the classroom can be typed by a stenographer trained in real time captioning and displayed on a computer screen for the deaf student to read. This technology is available but it is expensive and only a limited number of people can caption in real time at the time of the publication of this booklet. Some notetakers use real time captioning in schools.

The limitation of real time captioning is that deaf students who find reading difficult may not be able to follow the text. It is also a barrier to deaf students being able to participate in class discussions or ask questions at appropriate moments due to time lags.



SOCIAL AND EMOTIONAL WELLBEING

Deafness affects communication. Deaf students may feel left out or may not understand what is happening in many situations at school. This can be potentially damaging to their self esteem and self image.

When there is only one deaf student at the school and/or when the student can speak well, it is easy to overlook the fact that these students still have specific 'deaf' needs. Some deaf students may feel different and think they are the only ones who are deaf. They may have difficulty in accepting their own hearing loss.

As deaf students mature, they may wish to explore their own identity. Am I a deaf person? Am I a hearing impaired person? What is the Deaf community and why does it exist?[1] Do I belong to the Deaf community? In order to answer these questions, deaf students will need to have opportunities to:

- Meet other deaf students
- Meet adult role models who are deaf.

☑ **Handy hints: Meeting other deaf students**

- Organise for your deaf students to meet other deaf students. Email, SMS/text and MSN Messenger makes it easy to do this. Your Teacher of the Deaf will be able to assist. Even if students have contact with each other throughout the day, it is important they know deaf students from other schools so they have a larger peer group to choose from.
- Ask your Teacher of the Deaf about any upcoming events for young deaf people in the Deaf community or being organised by such organisations as Deaf Children Australia or Teacher of the Deaf networks.

☑ **Handy hints: Meet adult deaf role models**

- Invite a number of different deaf adults who speak and/or sign to your school to meet with all the students and provide time for them to meet with the deaf student.
- Introduce the deaf student to suitable web sites where deaf people are featured, for example:

Deaf Role Models for Deaf Students
www.deakin.edu.au/~lrk/drmds/

Listen Up Deaf Role Models
www.listen-up.org/htm/rolemodl.htm

Rockford Public Schools: Deaf and Hard of Hearing Role Models
webs.rps205.com/teachers/dmarkowitz/

Remember:

Deaf children who have positive self-esteem will have accepted their hearing loss and will:

- state when they can't hear something or have misheard
- say they have a hearing loss
- not be afraid to talk or sign in public
- wear their hearing aids and/or cochlear implant and FM system if beneficial, and not be concerned if they are visible to others
- realise that there are others who also have a hearing loss and possibly seek out these people for friendship.

Promoting Auslan

The provision of Auslan classes within the school may assist the deaf student to develop a sense of belonging.

Footnote:

[1] The Deaf community in Australia consists of deaf people who use Auslan (Australian Sign Language) and who have been deaf from birth or from an early age. All degrees of hearing loss are represented in the Deaf community but not every deaf person elects to become a member. There are around 15,400 people (Hyde and Power: 1992) in this community, although recent research (Johnston, 2003) estimates the number to be only around 6,500. This community of people form a cultural and linguistic minority within the wider Australian society and have their own sporting, social and lobbying groups. The peak organisation of the Deaf community is the Australian Association of the Deaf (AAD). For more information on the Deaf community, visit the AAD website which is listed at the back of this booklet.

Independence

Due to communication difficulties, lack of awareness or low expectations by adults around them, some deaf students may need assistance with developing independence skills.

☑ **Handy hints: Independence**

- If appropriate, expect the deaf student to be responsible for their own hearing aids and/or cochlear implant and their FM system.
- Have the same behavioural expectations for the deaf student as other students and make sure they face the same consequences. Be sure the deaf student knows the rules or expectations before making any judgments.
- Create situations in the school or classroom where the deaf student is in a leadership role. Deaf students do not often get this opportunity.
- If appropriate, consult with the deaf student about how they would like to be supported, if and how they would like deafness explained to others in the school and how they would like others to communicate with them.

Social Skills

Some deaf students may not be aware of the social rules or communication skills used in social interactions and this may impact on their ability to make and keep friendships and behave appropriately.

They can easily miss out on incidental learning of social rules and may not be aware of the range and subtleties of verbal and non-verbal language and behaviour. This may lead to misconceptions and confusion for the deaf student when relating to peers, especially when the direction of play changes quickly. Misunderstandings can lead to frustration and impatience. It is important to be flexible and consistent in your approach to discipline.

Some deaf students may require a direct program of social skills development and your Teacher of the Deaf may be able to suggest where such a program can be obtained and how to implement it.



TEAM WORK

The successful inclusion of deaf students in your school will depend on good team work, drawing on the expertise of a variety of people. When the team meets to discuss the student's program, each person's role should be clarified and understood by other team members. A school representative co-ordinates the team to work together.

The student's support team could include:

School based staff:

- The class teacher
- Other teachers
- The school principal or nominee
- The school's integration co-ordinator
- Teacher assistants, integration aides, support staff, integration assistants
- Interpreters
- Notetakers

Non-school based personnel:

- Audiologists and/or the cochlear implant team
- Speech pathologists
- Teachers of the Deaf
- Guidance officers, psychologists and/or school counsellors
- Family and community workers and/or social workers

Others:

- The family of the deaf student
- The deaf student (if appropriate)

The deaf student

Involve the deaf student in discussions and decisions as appropriate. This will benefit both the student and the school. The student may offer insights into difficulties being experienced, how to resolve these or reinforce strategies already implemented.

Families of deaf students

Families of deaf students are critical members of the team and can give valuable insights into their child's educational needs. A very supportive team is developed when the family and school work together as equal partners.

Teachers of the Deaf

Teachers of the Deaf are qualified teachers who have additional post graduate qualifications in the education of the deaf. In addition to their teaching role, they advocate for the deaf student and facilitate the student's access to curriculum by:

- assisting teachers to understand the educational implication of the hearing loss
- assisting the class teacher with curriculum modification and adaptations if needed
- providing professional development for teachers and other support staff
- being a link between the family, the school and other professionals working with the student, providing information and assistance as needed.



Support staff

The role of the support staff is to assist the student with the lesson and ensure their inclusion in the classroom. They may work with small groups of students or work one-to-one on specific tasks under the teacher's direction.

Any support staff should be offered formal professional development in working with deaf students to ensure they understand the educational implications of the hearing loss and have some knowledge and skills in this area.

The provision of adequate and quality interpreting support is critical. Students need most of each day to be interpreted to allow access to communications in school.

The provision of interpreting support does not make deaf students dependent. Rather, such support makes deaf students independent as they are able to participate in the classroom, get on with learning and be responsible for themselves.

☑ **Handy hints: Support staff**

- Give the support staff copies of lesson plans and handouts.
- Discuss with them how you wish them to work in the classroom and what you expect them to do during lessons.
- Ask for their input on how to include the deaf student.
- Keep them informed of the student's progress.
- Ensure they understand your approach to discipline.
- Ask secondary school deaf students if they have a preference about how they want support staff to assist.
- Give them time to familiarise the student with topic vocabulary prior to the lesson or unit.

Interpreters

Some deaf students will use signing to communicate and these students will be supported by a person who signs all that is said in the classroom. The student will be either using Australian Sign Language (Auslan) or signed English.

- An Auslan interpreter interprets from English (spoken) to Auslan (Australian Sign Language) or from Auslan to English (spoken).
- A person who signs in English represents spoken English in a manual form.

☑ **Handy hints: Interpreters**

- Supply the interpreter with copies of notes, handouts and textbooks beforehand so they can prepare.
- Speak directly to the deaf student and not to the interpreter.
- Make sure you give the interpreter a ten minute break each half hour of interpreting so they can avoid Overuse Syndrome (also known as Repetitive Strain Injury - RSI). This injury is common amongst interpreters and can be avoided by working with the interpreter so the lesson is structured with instructions and discussions alternating with written class activities.
- There will usually be a small time lag between the spoken and the signed message which may prohibit deaf students from being able to answer questions quickly.
- The interpreter should stand beside the speaker so the student can also pick up visual cues.
- Interpreting DVDs and videos is a difficult task due to their length, speed and complexity. Give the DVD or video to the interpreter beforehand to watch so they can better pace themselves. Give them regular breaks through the screening or if possible, have two interpreters so they can interpret in tandem.
- Deaf students cannot watch the activity and the interpreter at the same time.
- Deaf students cannot be expected to read and watch the interpreter at the same time.
- The manner in which each interpreter works will vary between schools, depending on the needs of the student and the school.

Notetakers

Some deaf students may require the assistance of a notetaker who will record communications in the classroom for the deaf student to read, either then or after the class is finished.

☑ **Handy hints: Notetakers**

- If a teacher or integration aide is working as a notetaker, ensure they have training in the specific skills necessary.
- The notetaker's writing must be legible, the spelling and punctuation correct, and the notes logically organised with all required details. Headings and other important points should be underlined.



ABOUT HEARING LOSS

Identifying deafness

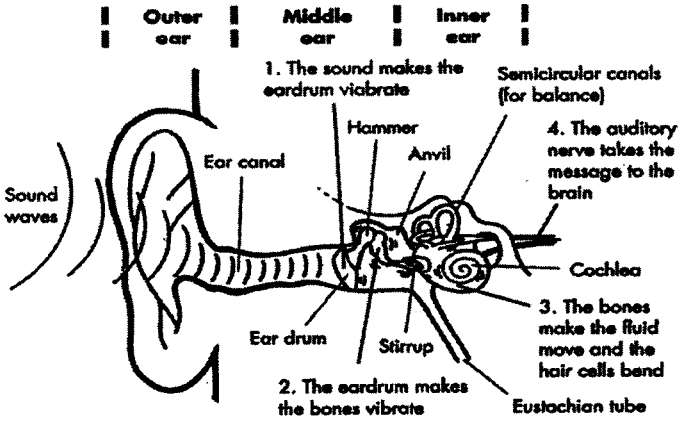
Students with conductive, mild or fluctuating hearing losses may be unidentified in your classroom, particularly in the very early years of school. There are also some rarer and progressive genetic hearing losses which can start in childhood or during the teenage years. If you have any concerns about a student's hearing, talk to the student's family and encourage them to visit their local doctor or Australian Hearing.

Signs that a student may have hearing difficulties:

- does not pay attention and may misbehave
- watches your face carefully
- has difficulty hearing if there is background noise
- cannot locate the source of sounds
- has articulation (speech) errors
- speaks too loudly or softly
- has immature vocabulary
- needs to have things repeated
- turns up the TV or radio
- does not hear or hears inconsistently at a distance
- copies the other students in the classroom
- misunderstands what is said
- has problems with spelling
- cannot tell one sound from another
- cannot hear whispered conversations
- does not learn as well as expected in school
- is very withdrawn or quiet and does not contribute to class discussions.

How we hear

The Ear



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Types of hearing losses

There are three main types of deafness, conductive, sensori-neural and central. Sometimes there is a combination of conductive and sensori-neural deafness. This is called a mixed hearing loss. Some students may have a unilateral (one side) hearing loss.

Conductive hearing loss

A conductive hearing loss means there is a blockage in the sound being conducted from the outer to the inner ear. This blockage occurs in the outer or middle ear. A conductive hearing loss can be temporary or permanent.

Conductive deafness can be caused by the three small bones in the ear not conducting sound properly, by malformations in the middle ear, perforated ear drums or wax.

One very common type of conductive hearing loss is otitis media. This is sometimes called glue ear and it is very common in young children. It is caused by poor air circulation in the middle ear which causes a fluid build up. It is important to know that hearing loss can be present even before

fluid builds up and without infection being present. Sometimes this clears up naturally, or antibiotics and decongestants may be prescribed. If fluid in the middle ear persists, surgical implantation of grommets (tubes in the ears) to help it clear may be recommended. These usually fall out naturally after six to twelve months.

Conductive hearing losses may be the unsuspected cause of behavioural problems. Teachers can be puzzled by students who seem to ignore instructions when in reality they can't hear.

One in three primary school age children will have some form of conductive hearing loss at any given time.

Sensori-neural hearing loss

The most common type of sensorineural hearing loss is a "sensory" loss, where the outer hair cells in the cochlea are damaged. With this kind of hearing loss it is possible to predict the ability to understand speech from the audiogram. This kind of deafness will cause both a loss of volume and distortion of the sound that is heard.

A sensori-neural hearing loss can be caused by many things such as genetics, rubella, prematurity or meningitis etc. It can be any degree of hearing loss, can affect different frequencies more than others and can be in one ear or both.

Auditory neuropathy is the name used to refer to a more uncommon type of sensorineural hearing loss, where the sound pathway from the cochlea to the brain is disrupted - a "neural" loss.

Students with this condition often have unpredictable responses to sound and hearing aids. The hearing loss can vary in degree from day to day and from mild to profound. Sometimes the student's ability to understand speech may be worse than predicted on the basis of the audiogram. This is a difficult condition to understand and reasons for the variation in hearing are unclear at this stage.

Central hearing loss

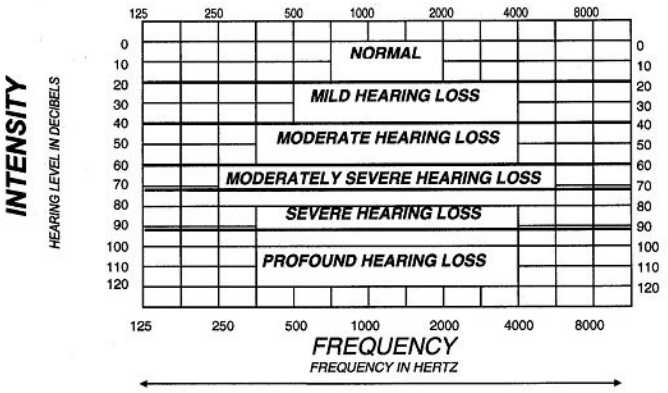
This is when there are problems in the way in which the brain processes and interprets the electrical signals.

A unilateral hearing loss

A unilateral hearing loss means one ear has a hearing loss and the other ear can hear normally. Students with a unilateral hearing loss will have trouble locating the source of sound, may prefer to sit with their better ear directed to the speaker and may experience difficulties hearing in background noise. Hearing aids may or may not be effective.

Measuring Hearing

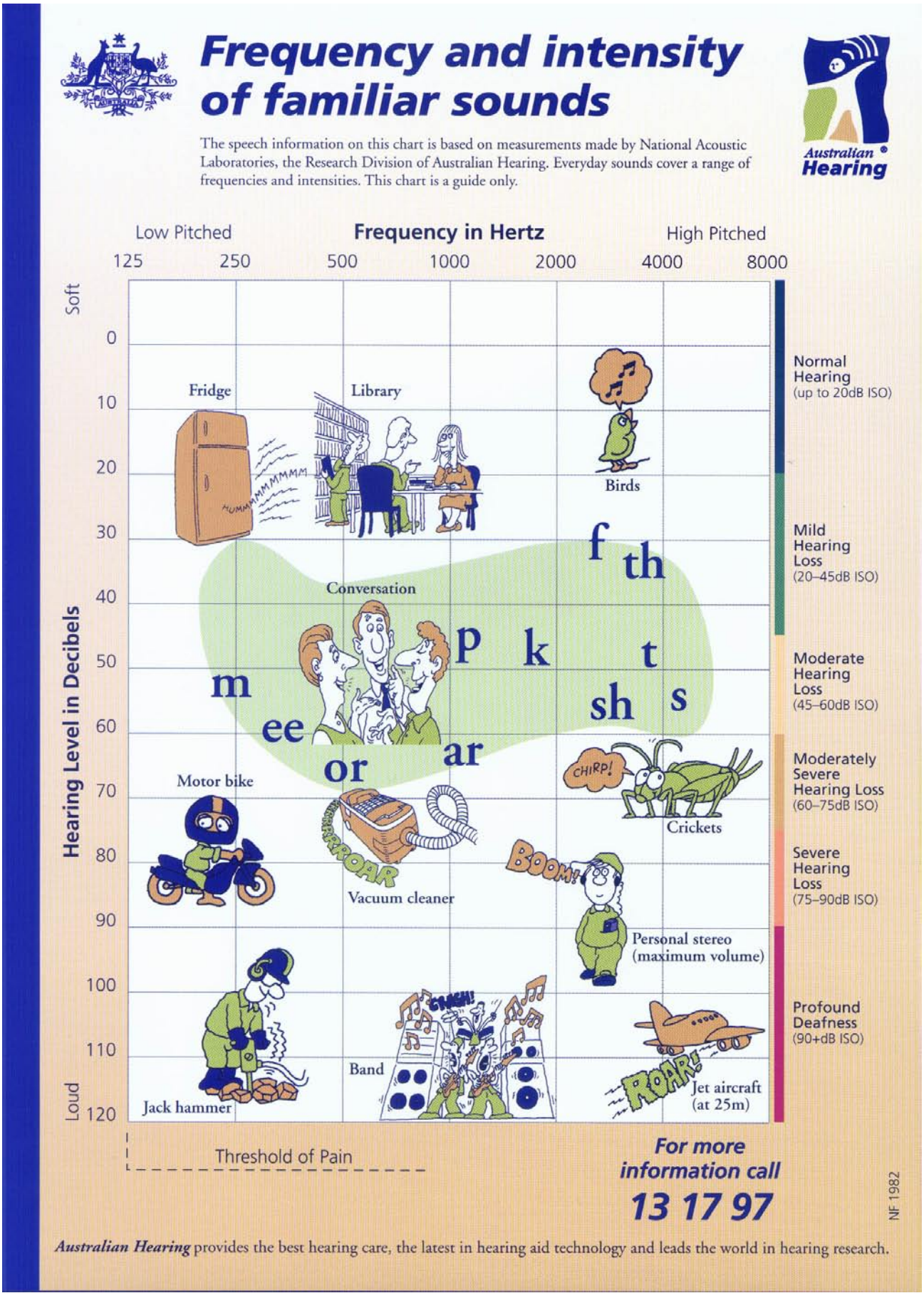
When hearing is tested an audiologist plots on a graph the softest level that can be heard by the child at each frequency. Each ear is tested separately and the graph becomes the audiogram. Sometimes there will be better hearing in one ear than the other. The diagram below shows the terminology used to indicate the degrees of hearing loss.



An aided audiogram is obtained by testing what sounds can be heard via a speaker when hearing aids are worn. The softest levels at each frequency are then plotted on the audiogram.

Degrees of Hearing Loss

The diagram below shows the loudness of various sounds and the degrees of hearing loss. The shaded area in the centre shows the loudness of different speech sounds.



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The table below shows the degree of hearing loss, and a guide to its effects:

Decibel Loss	Level	Effect on understanding speech and language
0 - 20 dB	Normal	
20 to 45 dB	Mild	Without hearing aids the student may have problems with faint speech, hearing from a distance, in group conversations and in background noise. They will benefit from early intervention and educational support.
26 to 60 dB	Moderate	Without hearing aids the student will have difficulty hearing normal conversational speech in quiet and in the presence of background noise. They may have articulation errors and some language delays. They will benefit from early intervention and educational support.
61 to 75 dB	Moderately severe	Without hearing aids the student would not develop speech and language spontaneously. They would only be able to hear a raised voice in close proximity. They will need early intervention to develop speech and language skills and educational support.
76 to 90 dB	Severe	Without hearing aids, the student will not hear normal conversational speech. They may not hear a raised voice. They will need early intervention and educational support. Some of these students will use cochlear implants rather than hearing aids.
90 dB +	Profound	Hearing aids do not benefit all who fall into this group and many have and use cochlear implants. Without hearing aids and/or cochlear implants, students may hear only a few very loud noises. They will need early intervention and educational support.

Communication Methods

The student's family decides what form of communication they prefer their child to use. There is no one manner of communication which suits all deaf students. All deaf students are different and the communication chosen should suit the student's individual needs which can change over time.

Oral communication

- Speech and listening with or without lipreading
- Cued speech

Manual communication

- Signed English
- Auslan
- Signing in English
- Makaton (note: be aware that Makaton does not provide deaf students with a complete language system.)

For more information on different communication methods: www.deafchildrenaustralia.org.au

A note about lipreading

Most deaf students will lipread and watch for facial expressions and other visual cues to supplement what they hear. It is extremely difficult to communicate through lipreading alone as only about 30 percent of sounds are actually visible. Others are formed in the mouth or at the back of the throat.

TECHNICAL SUPPORT

It is important to understand that all hearing devices have been designed to assist deaf students to hear but they cannot replicate normal hearing.

Hearing aids

Australian Hearing provides hearing aids to all children up to the age of 21 years. Australian Hearing also provides advice, hearing tests, moulds, batteries and repairs. Hearing aids are different for each student as each hearing aid is matched according to the student's hearing loss. Families may also choose to purchase hearing aids with additional features for their children.

Students should wear their hearing aids for the full school day, including outside so they are able to hear their peers, participate appropriately in games and develop their social skills. Hearing aids may or may not be worn for sports, depending on the activity undertaken. Hearing aids must not get wet.

Hearing aids receive sound, amplify the sound and send the sound to the ear. They are powered by a battery. It is a good idea to have a supply of batteries on hand, particularly when working with younger deaf students.

Hearing aids do not restore hearing. They provide amplification but in doing so, amplify everything which makes hearing in noisy places very difficult. They also do not work well over distance.

Hearing Aids: A Basic Trouble-Shooting Guide:

Symptom	Possible Cause	Solution
Whistling or squealing noise while aid is worn	The ear mould is not inserted properly	Re-insert the mould
	Ear wax blocking the ear canal	Use earmould sealant/lubricant available from Australian Hearing Have the ear canal examined
	Ear mould tubing split	Contact Australian Hearing
	Ill-fitting ear mould or in-the-ear hearing aid too loose	Contact Australian Hearing
No sound	Aid not turned on	Check the battery holder is fully closed and aid switched on
	Dead battery	Replace the battery with a new one
	Tubing blocked with wax or moisture	Remove wax or moisture from tubing
	Faulty hearing aid	Contact Australian Hearing, send the aid for repair
Weak sound	Volume too soft	Adjust the volume level (note: some students have their hearing aid volume controls locked)
	Moisture or wax partially blocking tubing	Remove wax or moisture. If problem persists, contact Australian Hearing
	Change in the student's hearing level	Inform the family, contact Australian Hearing
Intermittent sound	Dirty or corroded battery contacts	Return the aid to Australian Hearing
Hearing aids not secure on the ear	Student is active	Double-sided tape or Huggy Tubing available from Australian Hearing



Frequency Modulated (FM) or Radio Frequency (RF) systems

Many students with hearing aids and/or cochlear implants find it difficult to hear from a distance and in noisy situations. FM systems have been designed to overcome these two problems.

FM systems are used in conjunction with the student's hearing aids and/or cochlear implant. They consist of two parts, the transmitter and the receiver. The student wears the receiver and the speaker wears the transmitter. Some FM systems have cords or neck loops connected to the receiver, while others may be wireless. Sounds are transmitted via radio waves to the receiver, which converts them to sound. This is amplified by the hearing aids or the cochlear implant. The speaker's voice will be heard at a constant level and will stand out from background noise.

Symptom	Possible Cause	Solution
No sound	Power off Transmitter off Flat batteries No batteries Cords detached Hearing aids faulty	Turn on Turn on Replace Replace Reattach See hearing aid section
Reduced volume	Low batteries Ear mould blocked Hearing aid faulty Receiver volume set incorrectly	Recharge or replace Clean See hearing aid section Reset
Whistling	Cracked and ill fitting mould, friction hook or tubing	Refer to Australian Hearing
Intermittent signal	Cords damaged/wires exposed Microphone faulty Interference in transmission of signal	Replace with new cords Contact Australian Hearing Change channels on transmitter and receiver and test
Red light on receiver is on	Transmitter off Mismatched frequencies	Check that transmitter is on Ensure same frequency on transmitter and receiver
Flickering light on receiver or transmitter	Low battery	Change or charge the batteries

Cochlear implants

Some children with severe and profound hearing loss receive little or no benefit from hearing aids. A cochlear implant may be an option for them. Cochlear implants differ from hearing aids because they do not amplify sounds but convert sound to electrical signals which are sent to the brain.

Cochlear implants do not restore normal hearing. They may give the student enough access to sound so that they can communicate through speaking, lipreading and listening.

The success of cochlear implants varies considerably, with some students receiving much more benefit than others. Research is continually improving our knowledge of how we hear and how the cochlear implant can assist.

The cochlear implant consists of an external part, which is the speech processor, a transmitter coil, a microphone and an internal part which is surgically implanted into the cochlea itself.

Students with cochlear implants can do most activities but some contact sports may be prohibited. Ask the student's family, your Teacher of the Deaf or the cochlear implant team for advice.

Cochlear Implants: A Basic Trouble-Shooting Guide:

Symptom	Possible Cause	Solution
The sound quality is poor or there is no sound	The speech processor is turned off	Reset processor by switching off for a few seconds and switch on again
	Microphone faulty	Clean, check or replace the microphone
	The sensitivity setting is on the wrong level	Check the sensitivity or volume control level is at the recommended setting
	The cords have become unplugged or broken	Check the cables are connected or replace the cables. Check the transmitting coil is in place on the head
	The battery is flat	Replace all batteries, new 675 for behind-the-ear and for the body worn fully charged AA batteries
The sound is intermittent	Microphone is faulty	Clean and check or replace the microphone
	Cables are broken Processor may be damaged	Replace the cables Send the processor for repair
Distortion of sound	Microphone is faulty	Clean and check or replace microphone
	Cables are broken Processor may be damaged	Replace cables Send processor for repair

Source: Nik Kydas, Cochlear Limited, Melbourne

USEFUL ORGANISATIONS

The Australian Association of the Deaf
www.aad.org.au

Australian Association of Teachers of the Deaf
www.aatd.org.au

The Australian Communication Exchange
www.aceinfo.net.au

Australian Hearing
www.hearing.com.au

Australian Sign Language Interpreters Association (ASLIA)
www.aslia.com.au

Aussie Deaf Kids
www.aussiedeafkids.com

Deaf Children Australia
www.deafchildrenaustralia.org.au

Deafness Forum
www.deafnessforum.org.au

Deafness Foundation
www.deafness.org.au

Deafness Resources Australia
www.deafnessresources.net.au

Queensland Department of Education
www.education.qld.gov.au/curriculum/learning/students/disabilities/resources/infor

The National Deaf Children's Society
www.ndcs.org.uk

Word of Mouth (Technical Resources)
www.wom.com.au

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