



Appendix A

Hearing aids

A hearing aid is a small piece of equipment that makes sounds louder. Many people think that a hearing aid will cure a child's hearing problem and make him hear sounds like other people do. This is not true. Hearing aids only make sounds louder. They do not fix any other problem. For more about different kinds of hearing loss, see Chapter 5, starting on page 47.

Hearing aids can be worn in one or both ears, depending on the kind of hearing loss a child has. They can help a child who hears some sounds to hear sounds better. If a child cannot hear **any** sounds, a hearing aid will probably not help.

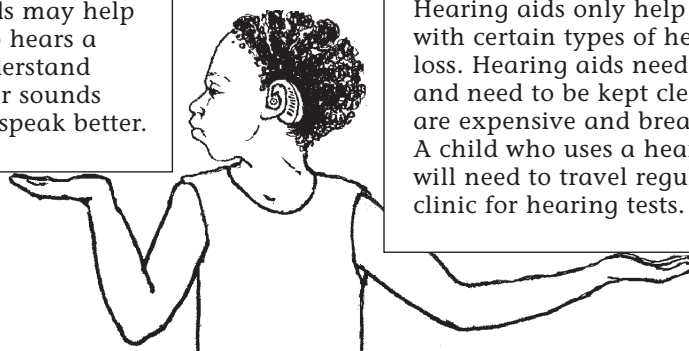
Is a hearing aid right for my child?

BENEFITS

Hearing aids may help a child who hears a little to understand speech, hear sounds better, and speak better.

DIFFICULTIES

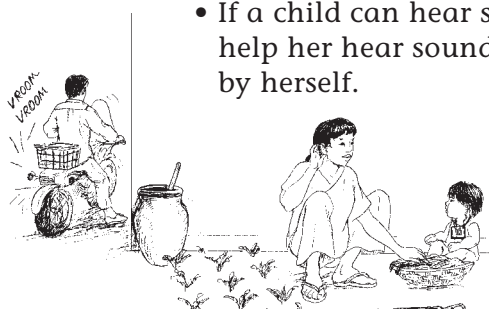
Hearing aids only help children with certain types of hearing loss. Hearing aids need batteries and need to be kept clean. They are expensive and break easily. A child who uses a hearing aid will need to travel regularly to a clinic for hearing tests.



A hearing aid will only work well if it fits a child's ear exactly. The earmold (the part that fits in the ear) is made from impressions of the outer ear, and no two ears are the same. In young children, the earmold must be checked at least twice a year. It must be replaced as a child's ear grows and changes shape.

WHAT HEARING AIDS CAN DO

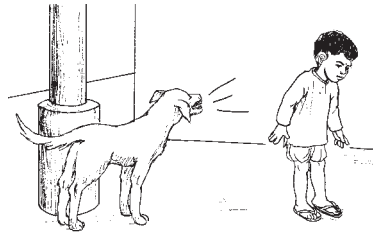
The benefits of a hearing aid depend on the kind of hearing loss a child has.



- If a child can hear some sounds, a hearing aid will help her hear sounds that are too soft for her to hear by herself.

- If a child can hear faint speech sounds, a hearing aid will make speech louder, and may help her hear what others say. This can also help a child learn to speak.

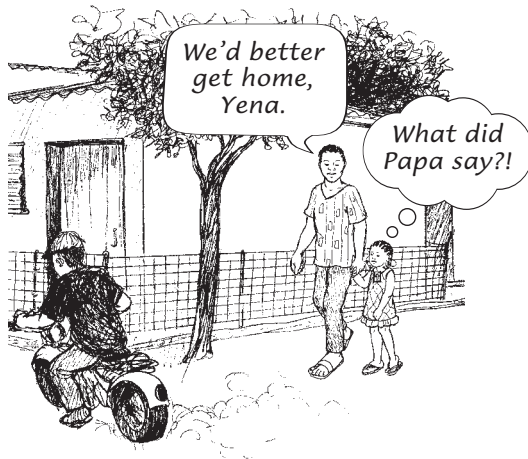
- If a child can hear some sounds, a hearing aid may alert him to sounds that warn about danger.



WHAT HEARING AIDS CANNOT DO

- If a child cannot hear any sounds of a certain pitch (see Chapter 5), a hearing aid will not help him hear those kinds of sounds.

This child cannot hear high-pitch sounds, no matter how loud they are. A hearing aid will not help him hear the flute.

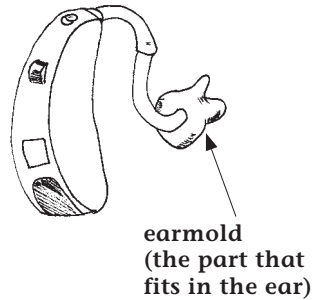


- Hearing aids make all sounds louder. This means a hearing aid will not help someone in a noisy place hear people more clearly than other noises.

Types of hearing aids

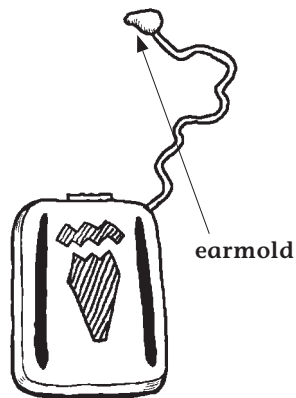
Here are 2 of the most common hearing aids that children use:

Behind-the-ear (BTE) aid



This is how a child wears a BTE aid.

Body aid



This is how a child wears a body aid.

At one school for deaf children in India, all children wear the hearing aids in a harness on the chest. The harness is on the chest so the microphones can help the child hear his own voice. The harness is made of thick cotton cloth, to reduce noise from cloth. The microphones of the hearing aid are kept in pockets. These pockets are tight (to reduce cloth noise) and they keep the microphone visible.

If a child can use a hearing aid, it is best for the child to begin wearing the aid as soon as possible. This way he can get used to hearing sounds and start learning what they mean. To get the most help from his hearing aid, he should wear it all the time, except when he is bathing or sleeping.

Babies can begin wearing hearing aids when they are as young as 3 months old.



Is a hearing aid a good choice for your family?

If you are trying to decide whether a hearing aid is right for your child, you must think about:

- where your child will get hearing tests
- how much a hearing aid will cost

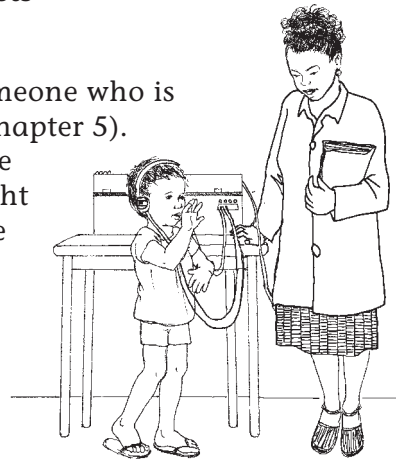
Your child's hearing must be tested by someone who is trained and has testing equipment (see Chapter 5).

Information from the test is used to set the hearing aid so it will make sounds the right loudness for your child. He will need to be tested every year.

Here are some questions to consider:

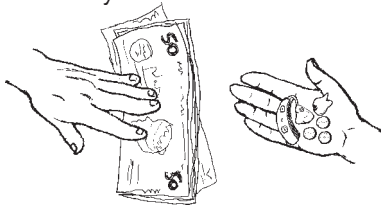
Can we afford the testing?

Testing can be expensive. Some places, however, offer testing free or at low cost.



Can we afford a hearing aid, and new earmolds and batteries?

Hearing aids are expensive to begin with, but buying the aid is not the only cost. A child between the ages of 2 and 6 will need a new earmold about every 6 months because his ears are growing fast. The earmold **must** fit well, otherwise the hearing aid will not work correctly.



Getting new earmolds and batteries can be very costly.

In some places, the government may have programs to give free or low-cost hearing aids to all children who need them. Try contacting the Ministry of Education, the Ministry of Health, or a school for the deaf. But such programs are not available everywhere.

You may need new batteries every week or every couple of months. How often you need new batteries depends on how many hours each day your child wears his hearing aid, the type of hearing aid he has, and the kind of batteries he uses. Some countries provide them free.

Hearing aids and batteries should be available to all children who can benefit from them, not just to families who can afford them!



Can we check the hearing aid every day and take care of it?



Hearing aids need to be checked every morning to make sure the batteries and the aid are working well. The earmolds also need to be washed and dried regularly so that dirt will not block sound from getting to the ear.

And hearing aids must be handled carefully. If the aid gets wet, or is dropped, it may break or need repair.

If you decide to get a hearing aid

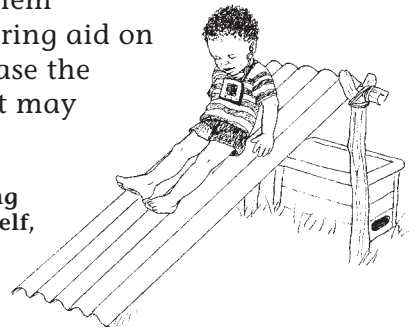
If you decide a hearing aid is right for your child, be sure that you receive information along with the aid so you can learn:

- how to help your child get used to wearing a hearing aid
- how to care for the hearing aid
- how to check the aid each day to be sure it is working
- what to do when the aid does not work well

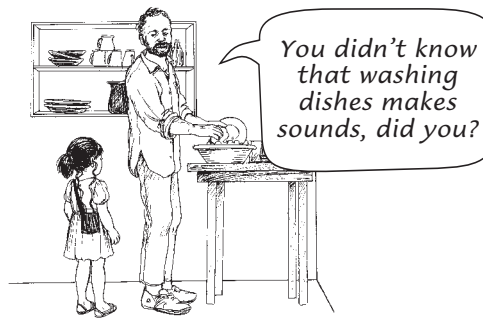
► Ways to help your child get used to wearing a hearing aid

Every child reacts differently to wearing hearing aids. Some children like them right away, some children find them uncomfortable at first. At first, put the hearing aid on for only 15 to 30 minutes. Gradually increase the amount of time your child wears the aid. It may take many weeks for him to get used to wearing it.

If your child wears the hearing aid while he is enjoying himself, it is less likely to bother him.



Start using the hearing aid in a quiet environment to help your child become aware of the new sounds she can hear. Help her notice sounds by bringing your child closer to the sound or point the sound out to her.

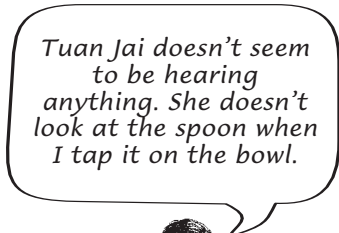


► **How to know if your child is hearing new sounds**

Do not expect your child to react to sounds immediately. Your child will have to learn to be aware of sounds after his hearing aid is put on. Children's reaction to sound depends on their age and how much they can hear.

You may have to watch carefully to see your child's reactions. She may:

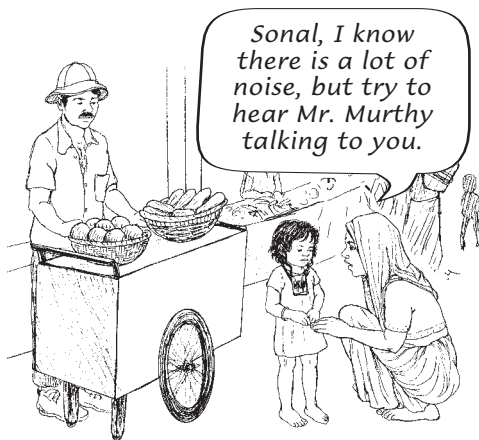
- blink her eyes or stop what she is doing.
- enjoy playing with toys that make noise.
- cry when she hears a sound.
- look up or turn around when she hears a sound.



It may be weeks or months before you see your child react to sound.



► **Help your child understand the new sounds she is hearing**



Even if a hearing aid helps your child hear sounds, she may not understand the sounds she is hearing right away. Your child will need practice listening to sounds with the hearing aid. See Chapter 6 for activities to help your child listen.

At first, she may find it uncomfortable to hear sounds, because she is used to living in a quieter world.

How to take care of hearing aids

With regular care, hearing aids will last longer, and give good sound.

Here are some tips to get better service from a hearing aid

- Keep the hearing aid far away from electrical equipment such as refrigerators and televisions.
- Do not let it get very hot or very cold.
- Keep it dry — sweat or water will damage it. During the day, remove it and wipe off any sweat or moisture. Remove the hearing aid before bathing, swimming, or when out in the rain. At night, put the hearing aid in a container with silica gel (a material that absorbs moisture). Do not use perfumes or any sort of spray on the hearing aid.

Cleaning

- Use a soft dry cloth to clean it. Never use any cleaning fluid.

Earmold

- Check for wax in the earmold regularly.
- Clean the ear mold with warm water.

Battery

- To make the battery last longer, turn the hearing aid off when it is not being used.
- Keep the battery clean, and remove it when the hearing aid is not being used for a length of time — for example, when a child sleeps at night.
- Change the battery regularly. To check if it is time to change the battery, turn the sound to the highest setting. If whistling is heard, the battery is okay. If not, it is time to get a new battery. If the battery loses power faster than usual, it may be a sign of a problem with the hearing aid.
- Store batteries in a cool, dry place. Bring a battery that has been kept in the refrigerator to room temperature before using.

*Now let's
rub it
with the
cloth.*

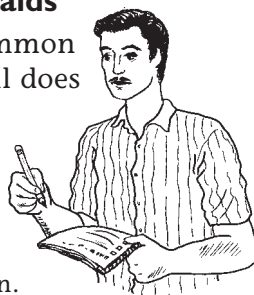


Try to have the hearing aid checked at a hearing aid clinic or store periodically.

Hearing aids may need repair. Usually hearing aid repair can be done only in big cities. But deaf organizations have started training deaf people to take ear impressions, to make earmolds, and to repair hearing aids.

Common problems and solutions for hearing aids

Use this list to help you to check and fix some common problems with hearing aids. If the hearing aid still does not work, it may need to be repaired.



If the hearing aid is 'dead'

- Is it turned on? Switch on.
- Is the battery dead or weak? Replace battery.
- Is the battery inserted properly? Check that + and - signs on battery match those on hearing aid.
- Is the cord broken? Replace cord.
- Is the ear mold blocked? Clean blockage in ear mold.
- Did water get into the hearing aid? Remove battery, wipe clean, and put in case with silica gel.

If the sound is not loud enough

- Is the battery low? Replace battery.
- Is the sound set too low? Turn sound louder.
- Are the ear molds loose? Insert carefully.
- Is the ear mold blocked? Clean blockage in ear mold.
- Is there lots of ear wax in the ear? Clean ear wax (see page 199).
- Did the child's hearing change? Check hearing.

If bothersome noises come and go

- Is the battery low? Replace battery.
- Is the cord broken? Replace cord.

If there is a 'frying' noise

- Is the battery low? Replace battery.

If the sound is not clear, or is distorted

- Is the battery low? Replace battery.
- Is the cord broken? Replace cord.
- Is the microphone covered by clothes? Expose microphone.
- Is the microphone covered with dust? Clean with soft cloth or brush.



Appendix B

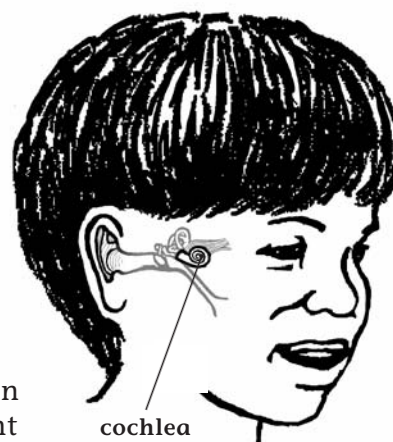
Cochlear implants and hearing

People are able to hear sounds because a part of the ear called the 'cochlea' sends signals about sound to the brain. If a person's cochlea is damaged, he will not be able to hear well.

A cochlear implant operation is a new way to help deaf children hear sound. Though it is very expensive, this operation is now available in many countries.

To give someone an 'artificial cochlea', the bones of his head must be cut open in an operation. A small piece of equipment called a 'cochlear implant' is inserted inside the innermost part of the ear.

the inside of the ear

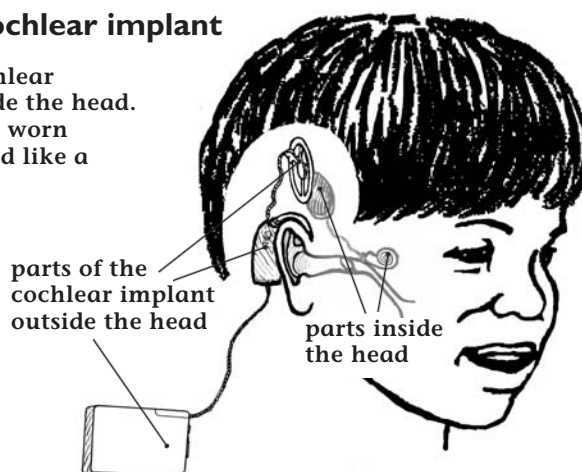


cochlea

The cochlea is a small part of the ear inside the head. It is shaped like a snail's shell.

parts of a cochlear implant

Part of the cochlear implant is inside the head. Other parts are worn outside the head like a hearing aid.



parts of the cochlear implant outside the head

parts inside the head

Who can be helped by a cochlear implant?

The cochlear implant is only given to children who are completely deaf or have very little hearing even with a hearing aid. In some countries, babies as young as 6 months can get cochlear implants. In other places they must be 1 to 2 years old. Cochlear implants do not help people who already have some hearing.

Effect of cochlear implant on hearing

Cochlear implants do not cure deafness. The implant's outside microphone and processor send signals to the implant which passes them to the brain. The outside parts are tuned over a period of time to meet each child's needs.

If your child does not use the cochlear implant correctly, he will not hear any sounds. Even when cochlear implants work well, hearing through an implant sounds different from normal hearing. Some people say that sounds seem flat or 'tinny' — they compare it to listening to a radio station that does not come in clearly. It will take some time and practice for children with cochlear implants to learn to understand the sounds they hear. Children must go to classes to be trained in how to 'hear' with the cochlear implant.

This child can hear the voices of her family members. She has to learn the difference between each person's voice.



The results of the operation, equipment, and training classes are very different for each child. Most children who have a cochlear implant, and who work very hard during training, will hear and understand sounds. Some children who get cochlear implants will also learn to speak. Other children may learn how to hear sounds and speak, but not well.

Is a cochlear implant a good choice for your family?

If you are trying to decide whether a cochlear implant is a reasonable choice for your child, here are some things to consider.

ARE COCHLEAR IMPLANTS AND PROFESSIONAL SUPPORT AVAILABLE IN YOUR AREA?

Many communities do not have doctors or professionals who are trained to work with cochlear implants. Most countries have some doctors who can perform the operation, but they are usually in big city hospitals where there may also be a cochlear implant center.

Having a cochlear implant center near you is important. You and your child will visit the center many times for several years. Your Ministry of Health or a school for the deaf might be able to tell you if there is a cochlear implant center close to you.

COST OF THE OPERATION AND COCHLEAR IMPLANT

The operation, equipment, and years of training with professionals are very expensive. In India, cochlear implants can cost about \$10,000. (Hearing aids cost about \$75.) As with hearing aids, children can lose or break parts that are worn outside the head. These parts can be very expensive to replace.

In China, the operation, equipment, and training equals 20 years of an average worker's salary.

In Mexico, the cost of a cochlear implant equals 4 years of a medical doctor's salary.



Older and cheaper cochlear implants do not work as well as the newer, more expensive equipment. In a few countries, programs offer the cochlear implant for free or at low cost.

Cochlear implants, like other kinds of health care, should not only be given to those who are rich enough to afford them. If a cochlear implant is the best thing for a child, the operation and support should be made available.

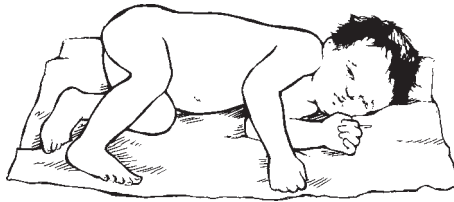


Cochlear implants and illness

Sometimes the cochlear implant can cause ear infections that can make hearing worse. It is important to treat ear infections quickly in children who have cochlear implants. It is also important to vaccinate them against childhood illness.

The cochlear implant equipment and operation can also cause a serious illness called meningitis, even years later. Meningitis is a very serious infection of the brain and can happen more in children who:

- are younger than 5 years old.
- became deaf because of meningitis.
- have ear infections.
- get sick often.



For more information about meningitis, see page 201, as well as the book *Where There Is No Doctor*, published by the Hesperian Foundation.

CARE AND SUPPORT AFTER THE OPERATION

Young children with a cochlear implant need extra care and help from their families and professionals. After children heal from the operation, they must spend years training with professionals to learn to hear and to understand the sounds they hear. The family will also need training in how to communicate with the child.





Appendix C

Child development charts

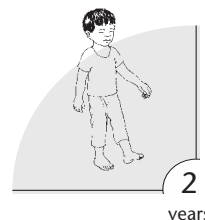
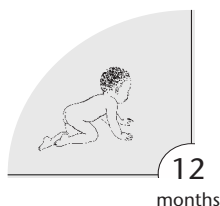
How to use these child development charts

Children develop in several main areas: **physical** (the body), **mental** (the mind), **communication** (signing or talking), and **social** (relating to other people). Any one action a child does often includes a skill from each area. For example, when a child reaches his arms up to be held, he is using a:

- physical skill — he holds up his arms
- mental skill — he recognizes you
- communication skill — he tells you what he wants
- social skill — he enjoys being held by you



The charts in this chapter show some of the skills children learn and the age at which most children learn them. You can use the charts to get general information about how children develop and to help you decide what skills your child needs to learn.



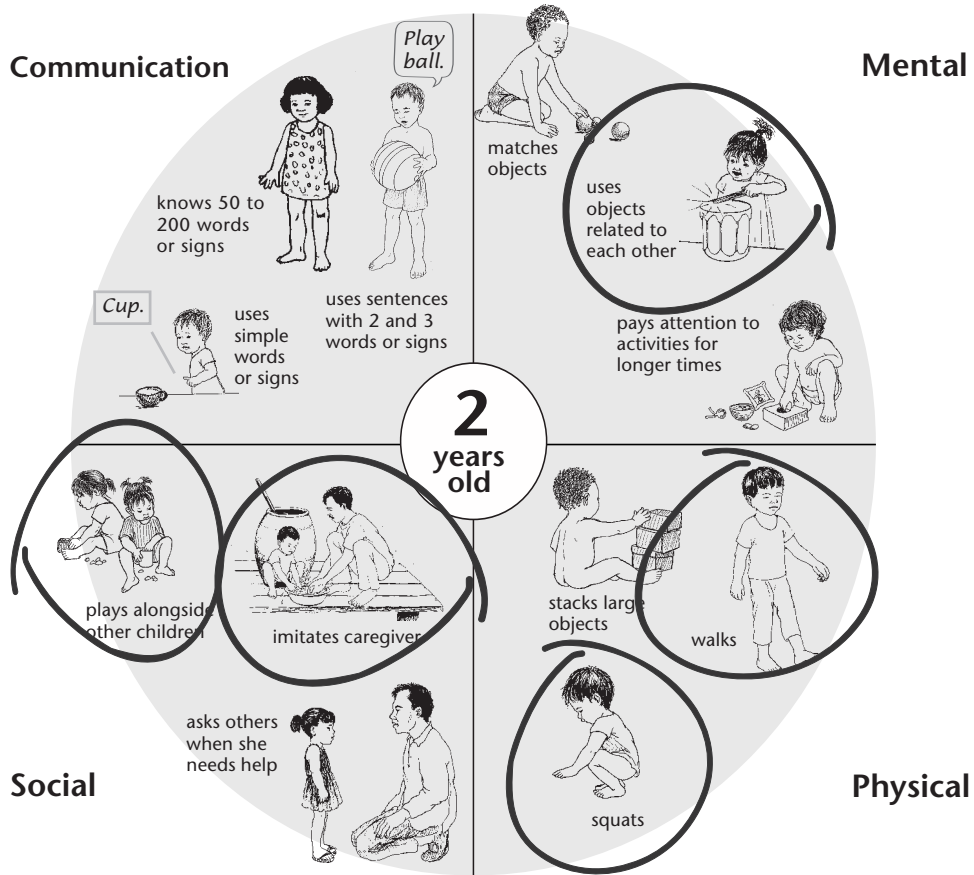
The charts show how children's physical skills change as children grow.

► **How to know what skills your child needs to learn**

Find the chart for the age group closest to your child's age. On the chart, circle the skills your child has. You may find your child does not have some skills that other children his age have. Knowing this can help you decide which activities you want to work on with your child.

If your child's development is behind others his age

It is important to work on the skills your child needs to learn **next**, even if they are skills that other children usually learn much earlier. When your child has mastered more basic skills, he will be able to learn skills that others his age are learning. Trying to teach a child skills before he is ready will lead to frustration for both you and your child.

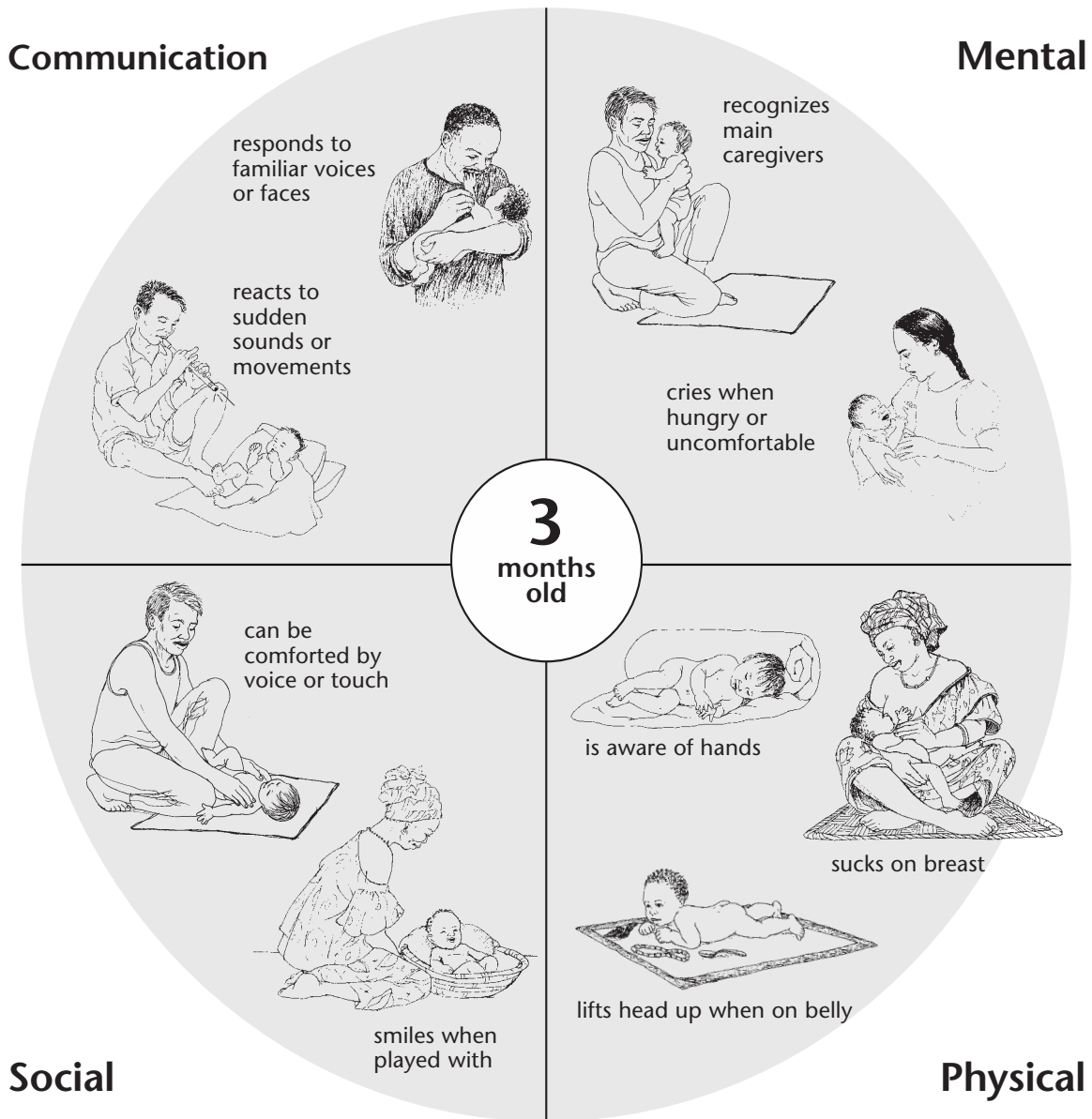


In the chart above, a mother has circled the skills her 20-month-old daughter can do. Her child needs help to gain skills in each area, but most of all she needs help in the communication area and in the mental area. For a child this young, the family should be working on basic communication (Chapter 4) and beginning to introduce language.

For an older child, you can start by looking at the chart that is nearest his age. But you may have to look at the charts for younger children to see the skills the child can do. Other charts will give you an idea of the kinds of skills your child will need to learn before he can work on learning skills like the ones on the chart nearest his age.

If your child cannot hear well, it is likely that he needs extra help to develop his communication, mental, and social skills. Chapters 2 and 3 will be helpful because they explain how children learn language and give some general tips for how to work with young children. Because children’s mental skills grow together with their communication skills, the activities in Chapters 4, 7, 8, and 9 will help a child increase both his communication and mental development. Chapter 12, on social skills, suggests many ways you can help a child develop his social interactions.

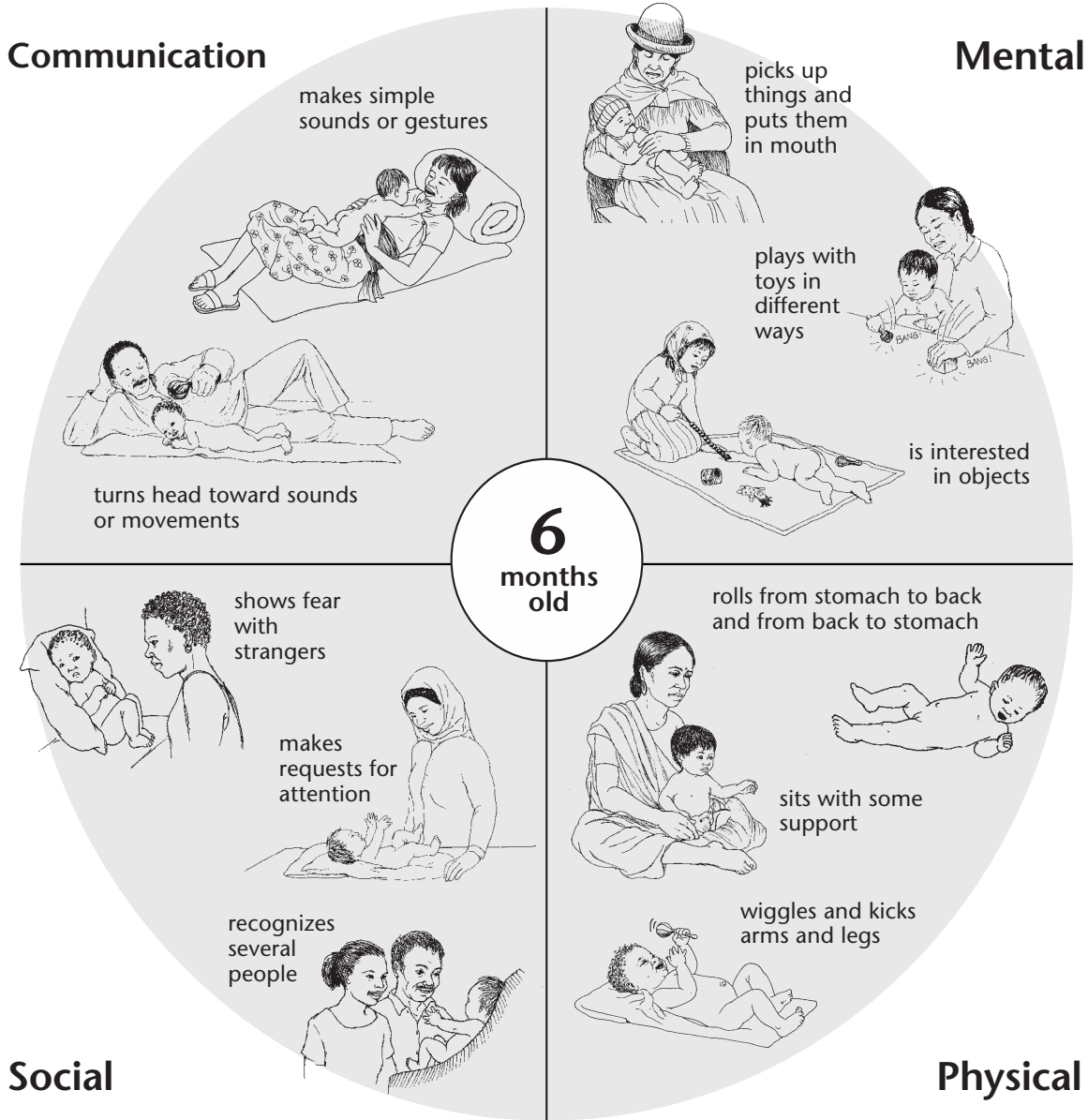
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many babies have when they are **3 months old**.



Babies who are deaf or cannot hear well will benefit from activities that help them develop in all of the skills in each area. The pictures are only **examples** of skills. In this example, look at the 'Communication' part of the circle: You do not have to play the flute! The question to ask yourself is if your baby reacts to a sudden sound or movement.

Keep in mind that the goal is for your baby to do the activities that other babies the same age do in your community.

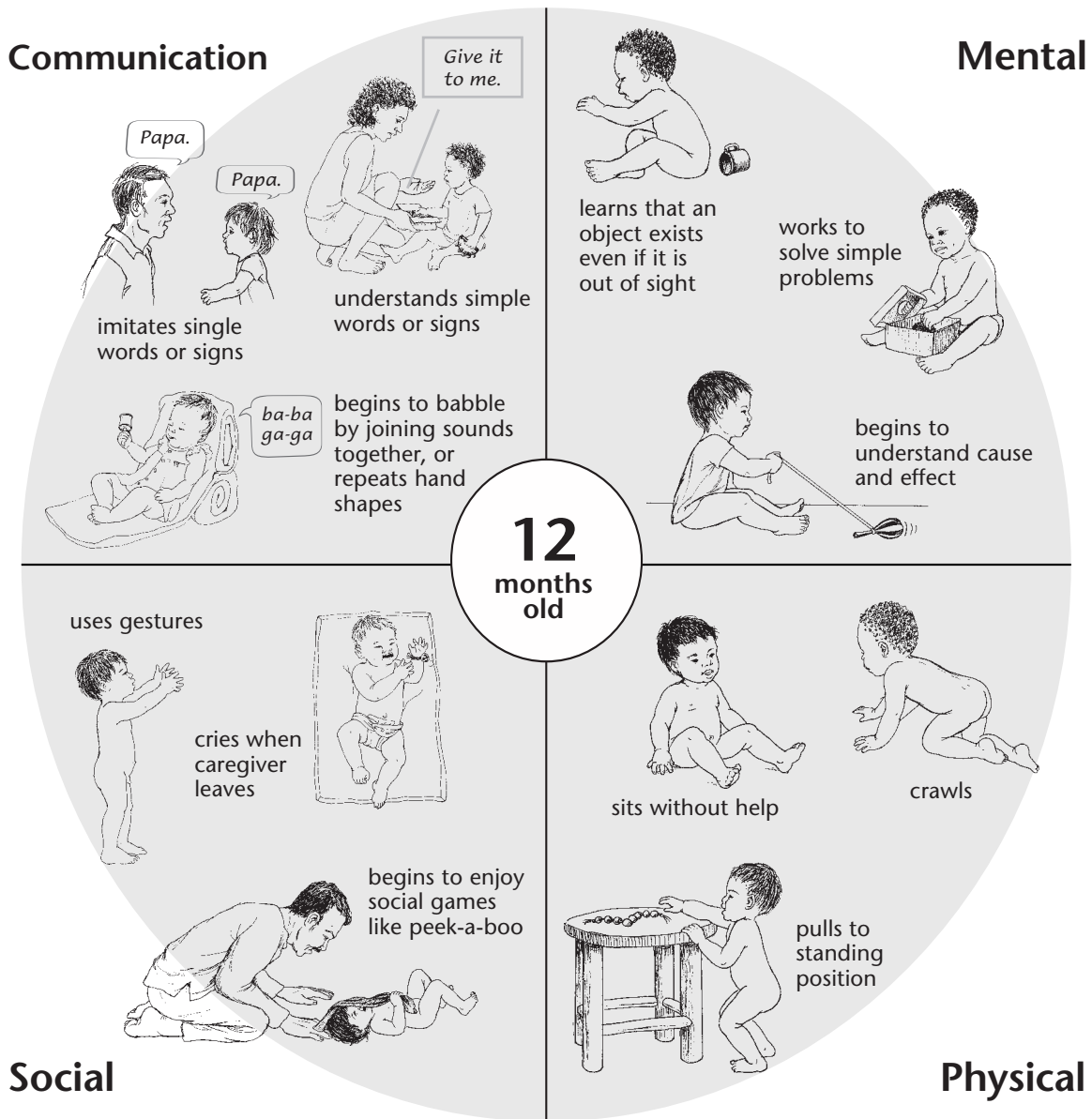
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many babies have when they are **6 months old**.



Babies who are deaf or cannot hear well will benefit from activities that help them develop in all of the skills in each area. The pictures are only **examples** of skills. In this example, look at the 'Physical' part of the circle: Your baby does not have to play with a rattle. The question to ask yourself is if your baby wiggles and kicks.

Keep in mind that the goal is for your baby to do the activities that other babies the same age do in your community.

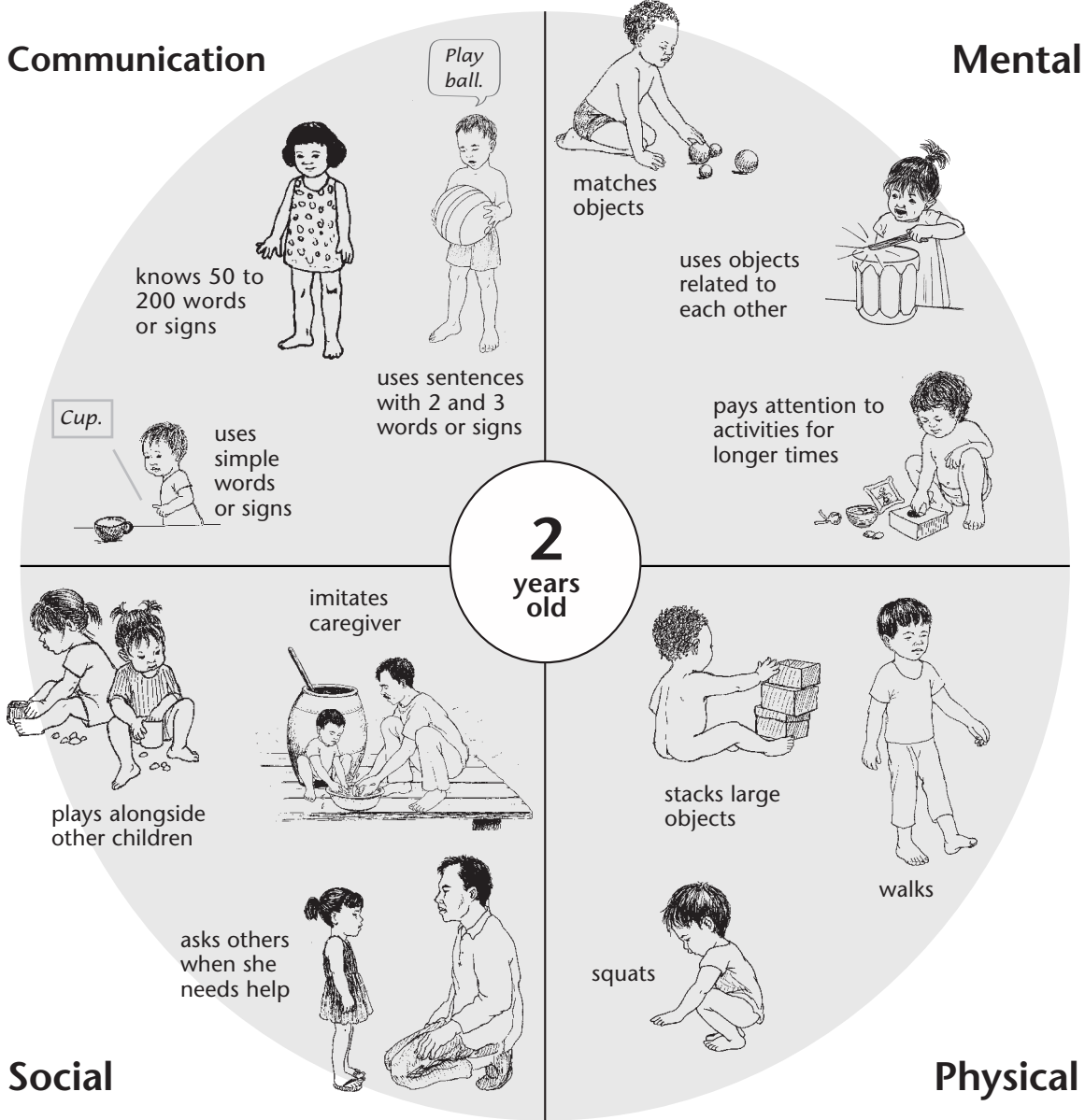
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many babies have when they are **12 months old**.



Babies who are deaf or cannot hear well will benefit from activities that help them develop in all of the skills in each area. The pictures are only **examples** of skills. In this example, look at the 'Social' part of the circle: You do not have to play peek-a-boo with your baby. The question to ask yourself is if your baby enjoys social games.

Keep in mind that the goal is for your baby to do the activities that other babies the same age do in your community.

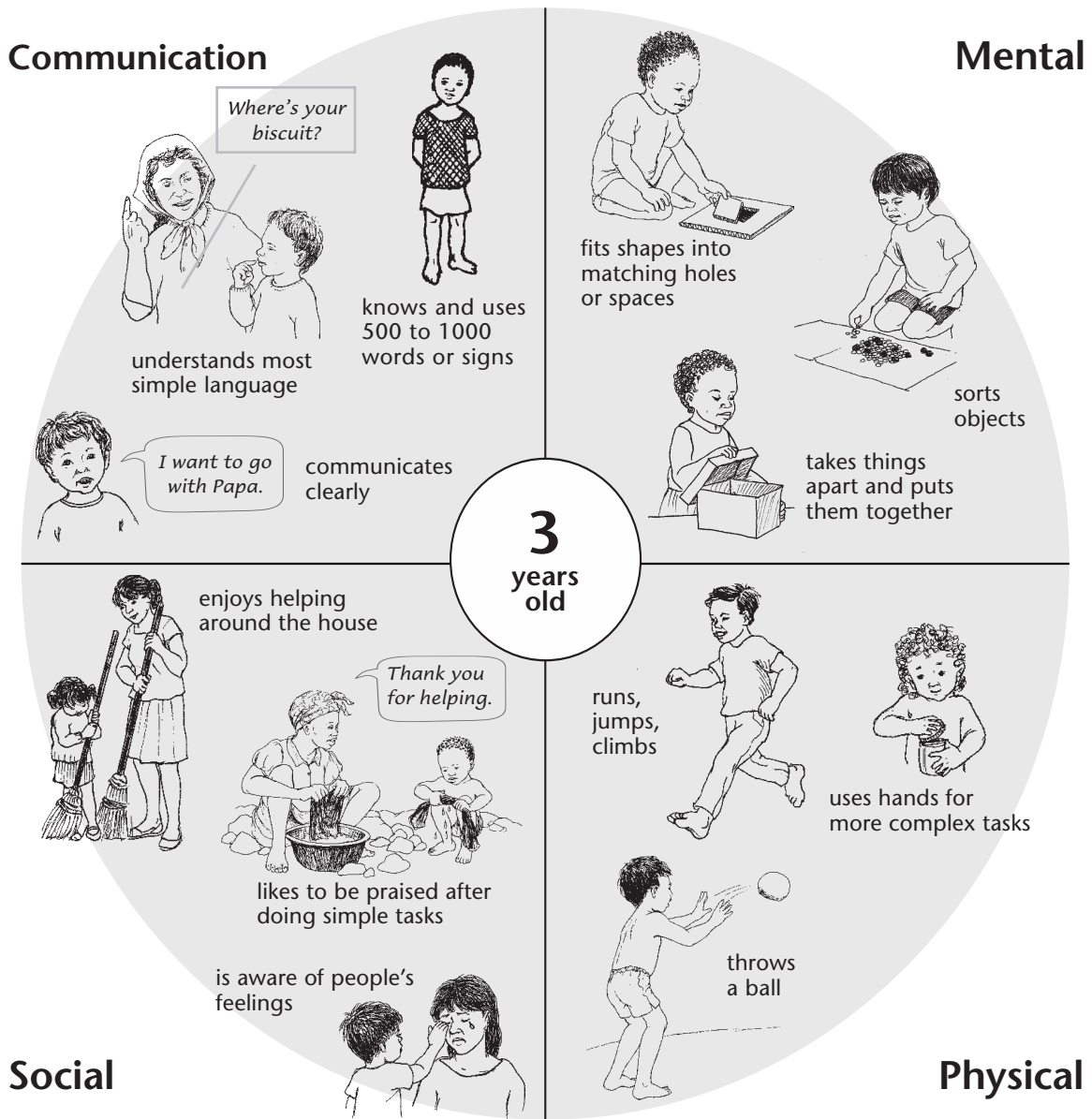
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many children have when they are 2 years old.



Children who are deaf or cannot hear well will benefit from activities that help them develop in all of the skills in each area. The pictures are only **examples** of skills. In this example, look at the 'Mental' part of the circle: Your child does not have to be able to play a drum. The question to ask yourself is if your child uses 2 objects together.

Keep in mind that the goal is for your child to do the activities that other children the same age do in your community.

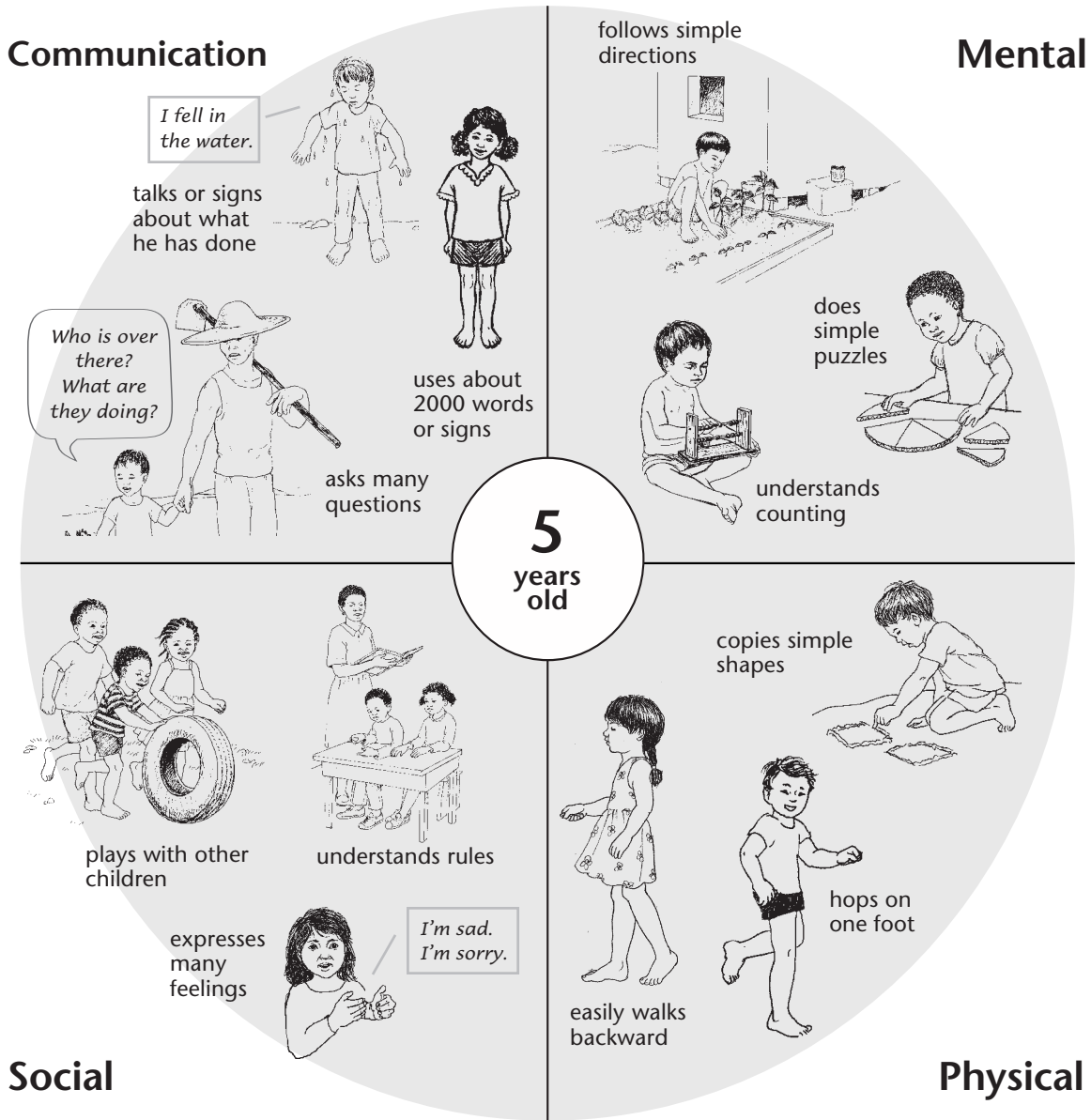
Each part of this circle shows a different area of development. The pictures and words are examples of skills that many children have when they are 3 years old.



Children who are deaf or cannot hear well will benefit from activities that help them develop in all of the skills in each area. The pictures are only **examples** of skills. In this example, look at the 'Social' part of the circle: Your child does not have to sweep the floor. The question to ask yourself is if your child enjoys helping work with the family.

Keep in mind that the goal is for your child to do the activities that other children the same age do in your community.

Each part of this circle shows a different area of development. The pictures and words are examples of skills that many children have when they are 5 years old.



Children who are deaf or cannot hear well will benefit from activities that help them develop in all of the skills in each area. The pictures are only **examples** of skills. In this example, look at the 'Social' part of the circle: Your child does not have to be paying attention to a teacher. The question to ask yourself is if your child understands rules like other children do.

Keep in mind that the goal is for your child to do the activities that other children the same age do in your community.