**03. The sense of hearing**

**How the Ear Work**

The ear picks up sound waves and transforms them into electrical signals which travel along nerves to the brain. The signals are interpreted by the brain and connected to other impressions and experiences – the sound is then perceived as loud or quiet, speech, music or a message such as “the phone is ringing.”

The ear has three parts:

* the outer ear (visible part, called the "auricle" or "pinna," and the external auditory canal)
* the middle ear (the eardrum or "tympanic membrane" and the tympanic cavity containing tiny ear bones. These are called the hammer, anvil and stirrup, or "ossicles")
* the inner ear (cochlea and the organ of balance, called the "vestibular system")

## What happens in each of the three sections of the ear?

The outer ear is made up of skin and cartilage. Like a satellite dish, it captures sound waves and passes them on to the outer ear canal. First cartilage and then further on bone help to keep this passageway open so that the sound waves can reach the eardrum without being affected.

The middle ear is an air-filled cavity also referred to as the tympanic cavity. It is connected to the upper throat by the Eustachian tube. Air moves in and out to accommodate different pressures in the outside environment. But germs can also enter the middle ear through the Eustachian tube from the upper throat.

It is the ear bones that are important for hearing: the malleus, the incus and the stapes. The malleus is attached to the eardrum, picking up its vibrations and passing them on to the inner ear via the incus and the stapes.

The sound waves are amplified by this transfer and then enter the cochlea. It is filled with fluid and lined with very fine hairs (hair cells). These cells convert the vibrations to nerve signals, which are then transported to the brain.

**Hearing in the Bible**

• I love the Lord, for he heard my voice; he heard my cry for mercy. Because he turned his ear to me, I will call on him as long as I live.

**Psalm 116:1-2**

• Therefore everyone who hears these words of mine and puts them into practice is like a wise man who built his house on the rock.

**Matthew 7:24**

• Here I am! I stand at the door and knock. If anyone hears my voice and opens the door, I will come in and eat with that person, and they with me.

**Revelation 3:20**

• In my distress I called to the Lord; I cried to my God for help. From his temple he heard my voice; my cry came before him, into his ears.

**Psalm 18:6**

• My son, pay attention to what I say; turn your ear to my words. Do not let them out of your sight, keep them within your heart.

**Proverbs 4:20-21**

• What you have said in the dark will be heard in the daylight, and what you have whispered in the ear in the inner rooms will be proclaimed from the roofs.

**Luke 12:3**

• As for you, see that what you have heard from the beginning remains in you. If it does, you also will remain in the Son and in the Father.

**1 John 2:24**

1 Thessalonians 2:13

And we continually thank God because, when you received the word of God that you heard from us, you accepted it not as the word of men, but as the true word of God--the word which is now at work in you who believe.