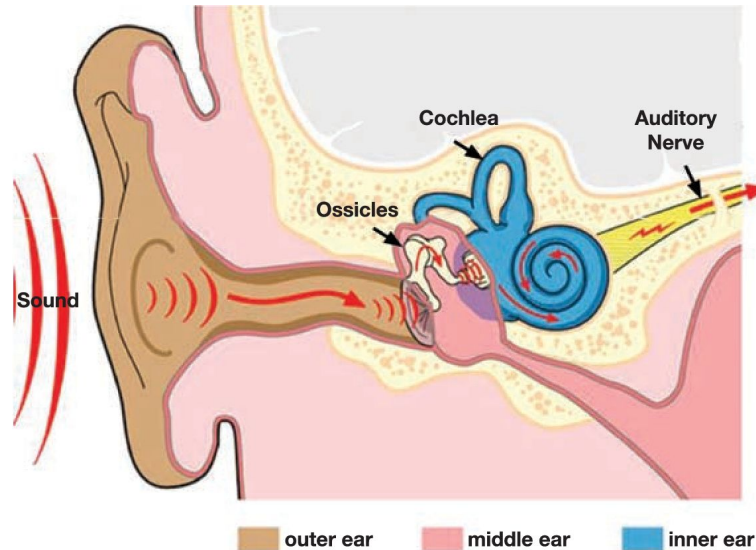


# Human Auditory System

Tue, July 7 (Week 3)

# Human Auditory System

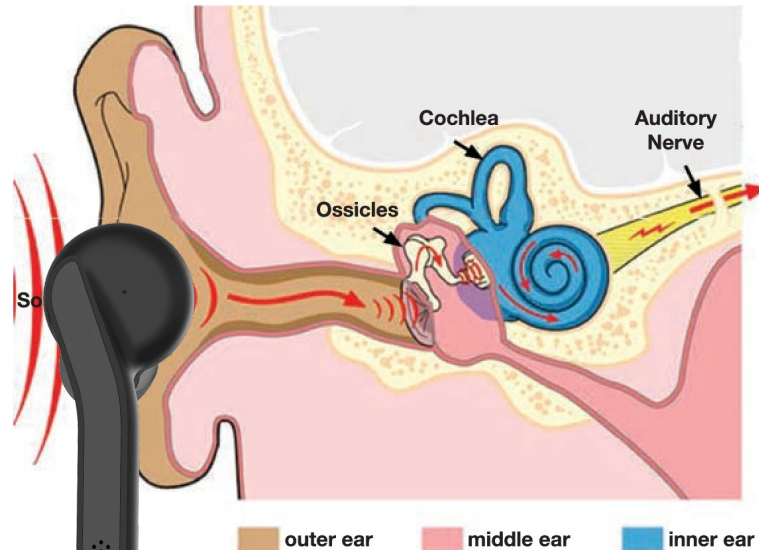
Sounds waves -> Eardrum -> Cochlea -> Brain



**Figure 1:** Sound (red arrow) forces the ear drum into vibrations which are conveyed to the ossicles in the middle ear cavity. These vibrations are further conveyed to the cochlea in the inner ear which transduces sound into electrical signals conveyed to the central auditory system through the auditory nerve.  
Source: <http://www.positscience.com/brain-resources/image-gallery/auditory-images>

# Human Auditory System

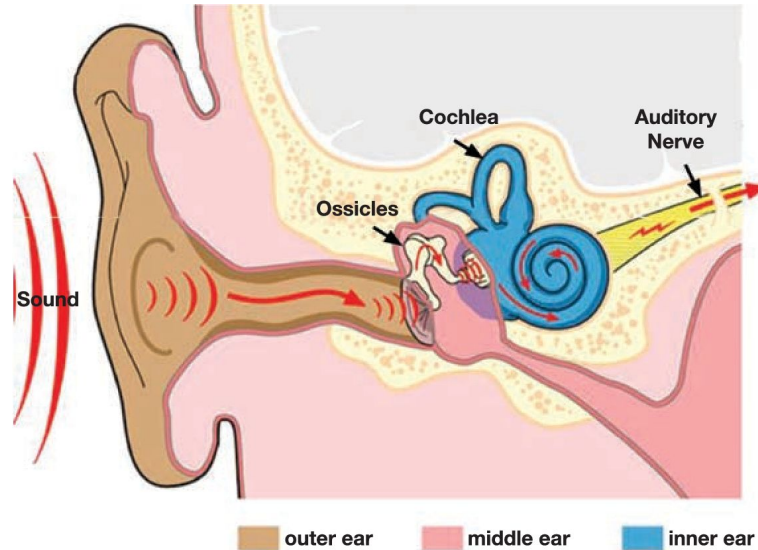
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Source: <http://www.positscience.com/brain-resources/image-gallery/auditory-images>

# Eardrum

Outer ear reduces the problem of understanding the whole space with sound waves to the vibration of a eardrum.

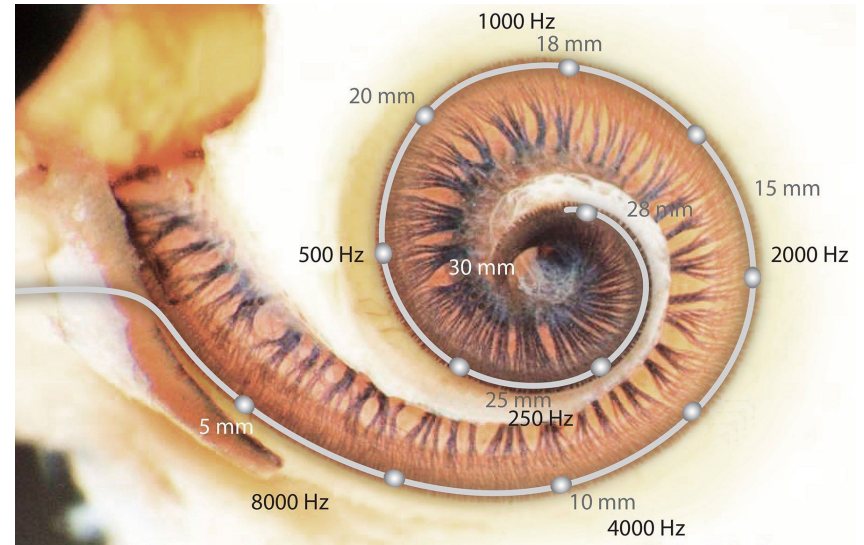
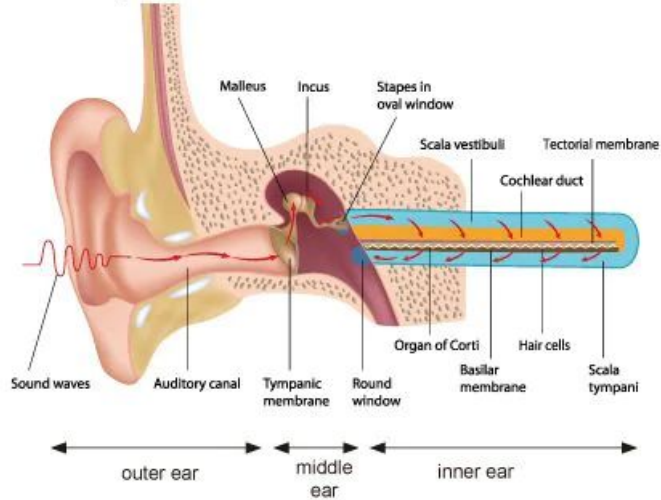


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Source: <http://www.positscience.com/brain-resources/image-gallery/auditory-images>

# Cochlea

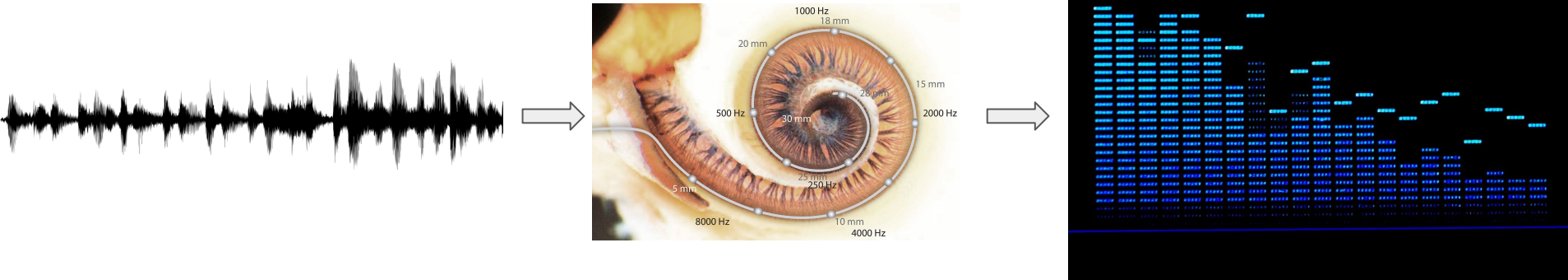
Converting wave to the frequency domain.

figure 401: anatomy of the human ear



# Cochlea

Converting wave to the frequency domain.



# Sound Localization



# What is Spatial Audio?

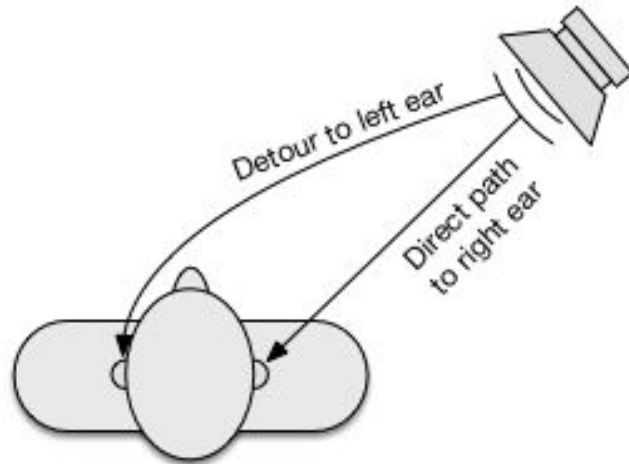
BLOG #1

<https://youtu.be/tIRcUlpWoh4>



# Sound Localization

The time difference of the sound reaching different ears.



# Sound Localization

The auricle (pinna) has a complicated shape making every direction of sound to have a different result the brain can decipher.

