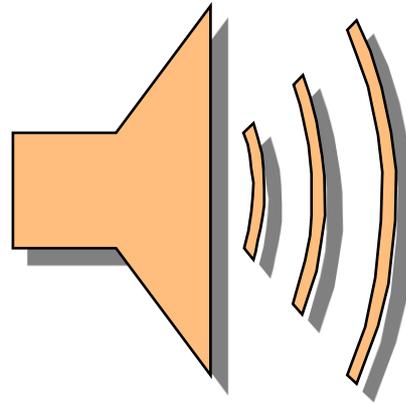


Hearing Sound

by Denise Carroll



What do you hear?

- Did you hear something? Maybe the sound you heard was as quiet as your cat licking her paws. Or maybe it was loud, like a siren going by.
- Sounds are everywhere, and you have two cool parts on your body that let you hear them all: your ears!
- No matter where we go, sound waves are all around us.



Sounds

Close your eyes and listen to these sounds.

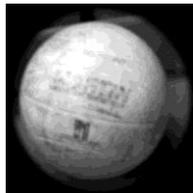
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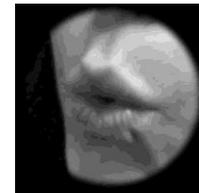
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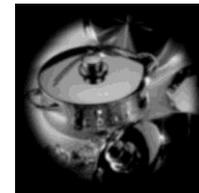
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What is sound?



- Sound is a form of energy that can be heard and travels in waves.
- When matter vibrates or moves back and forth very quickly, a sound is made.
- Sound waves can travel through solids, liquids, or gases.

○ Example: When a school bell rings, parts of the bell will vibrate creating sound.



How does the ear work?

- Sound waves are sent.
- The outer ear “catches the sound waves”.
- The middle ear takes the sound waves and “vibrates” the eardrum.
- The inner ear sends the messages to the brain.



- The brain puts it together and hooray! You hear your favorite song on the radio.

Sound Travels

- Sound travels in waves.
- Sound must travel through matter to be heard.
- Remember: Matter can be a solid, a liquid, or a gas.
- A sound is made when things vibrate.
- Sound travels by sending vibrations through matter.

Sound Travels Through Matter

Gases

Most of the sounds we hear travel through gases, such as air.

Sound waves travel slowly through the air.

For example: Sound from a bell, a horn, or an alarm clock travels through the air.

Liquids

Some sounds that we hear travel through water.

Sound waves travel a faster through water than through the air.

Sonar is the way to use sounds to locate objects under water.

What animals use sonar?

Solids

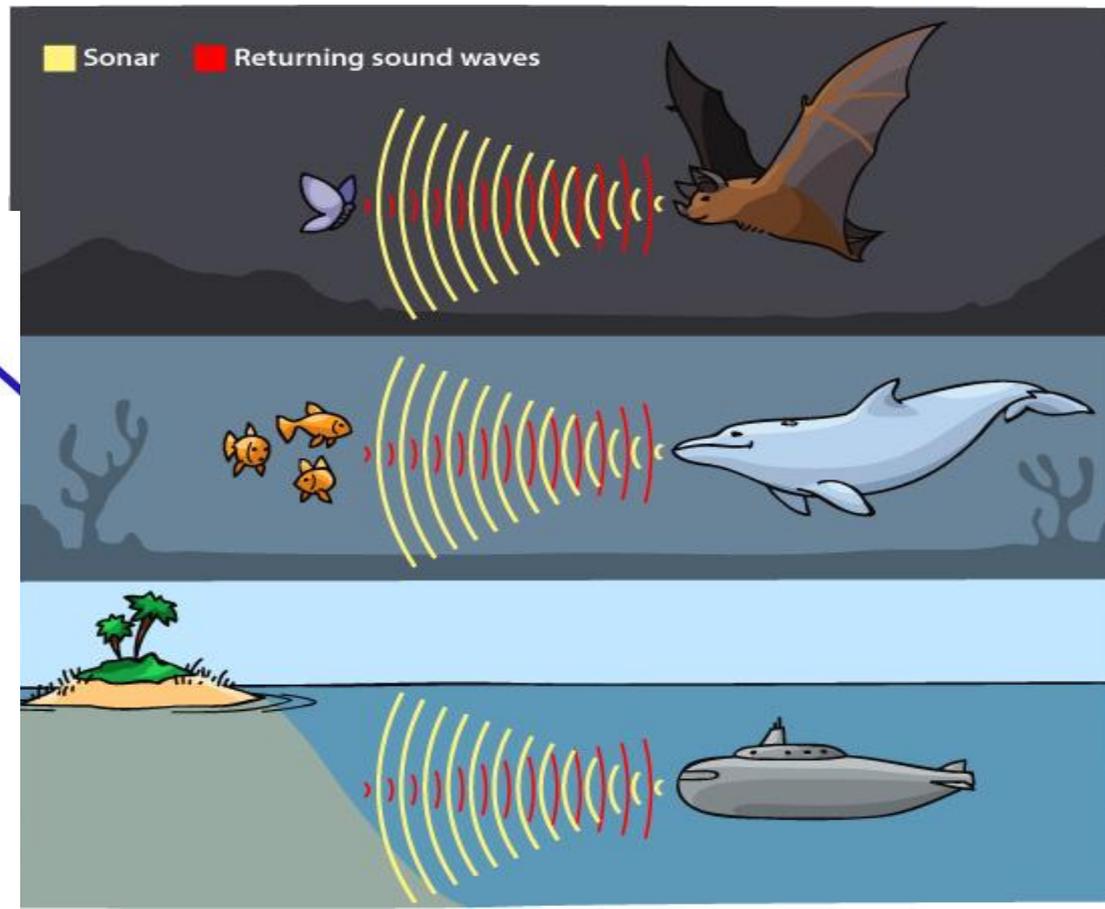
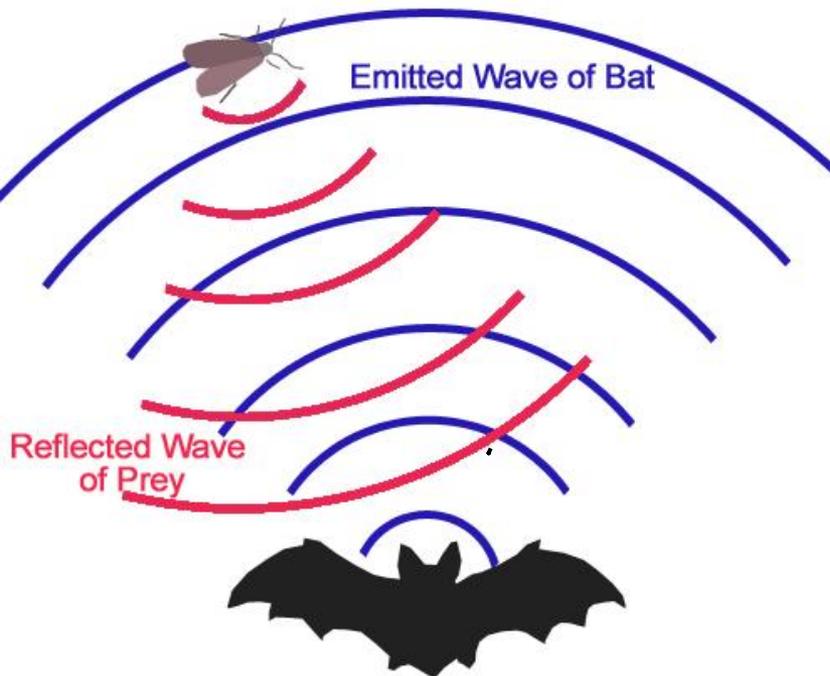
Some sounds that we hear travel through solids.

Sound waves travel very fast through solids.

For example: When you hit a drum, it vibrates, then the sound travels through the air, to your ears.

Echolocation

- Using sound to determine distances to objects



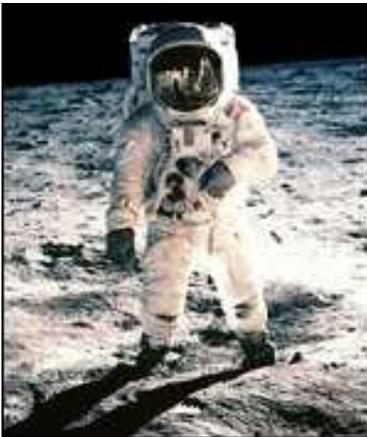


Batman and Demo

- Batman

Sound makes the air vibrate.

- For sound to be heard, sound vibrations must have air or some other kind of matter to travel through.
- You cannot hear sound in outer space because there is no air or other matter to carry sound vibrations.



How do you think astronauts are able to talk each other in outer space?



Cover your ears!

- Some people who work near loud machines wear ear coverings.
- The coverings block some of the sound vibrations from reaching the ears.
- The ear coverings protect your ears from the noise.
- Have you ever covered your ears?
Why?

Audiologist



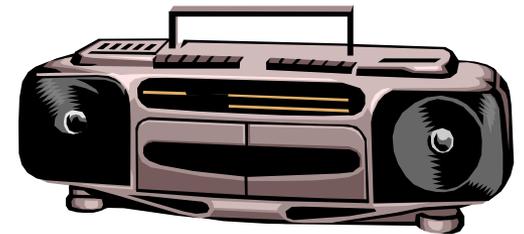
- An audiologist is a person who tests people's hearing.
- They use special machines that make sounds.
- They also help people who do not hear well.
- Have you had your hearing tested?

How You Make Sounds

- We use our vocal cords to make sounds in our throat.
- When we speak, our vocal cords vibrate.
- Place your hand on your throat when you talk, and you can feel the vocal cords vibrate.

Loudness or Volume

- Volume is the loudness or the softness of a sound.
- Loud sounds use a lot of energy.
- Soft sounds use a little energy.
- Example: The harder a drum is hit, the more the drum will vibrate . The more an object vibrates, the louder the sound it makes.



Pitch

- Pitch is the highest or lowest sound an object makes.
- Objects that vibrate slowly, make a low pitch. Example-drum.
- Objects that vibrate quickly, make a higher pitch. Example-recorder

Music

- Music is a combination or sequences of sounds that people enjoy listening to.
- Musical instruments make different sounds by plucking the strings.
- The shorter the string, the quicker it vibrates producing a high sound.
- The longer the string, the slower it vibrates producing a low sound.



Let's Review

- Sound is a kind of energy that can be heard.
- A sound is made when things vibrate.
- The vibrating object makes the air around it vibrate.
- Sound vibrations move through the air into your ears and make the eardrums vibrate.
- Volume is how loud or soft a sound is.
- Pitch is how high or low a sound is.