Facts About Sound

- Sound is caused when vibrations cause air to vibrate which causes sound waves which are picked up by your eardrum causing it to vibrate which is translated by your brain into a sound.
- Sound needs something to travel on, for example a solid, a liquid or a gas.
- Sound travels in air at about 1,224 km per second. Sound travels in water at about 5,400 km per second. That means sound travels much faster through a liquid than through air.
- Sound travels even faster through water. A sound can travel about one mile in five seconds in water.
- An echo happens when a sound bounces off a surface and bounces back to you.
- A large vibration causes a large sound and a small vibration causes a small sound.
- Soft materials such as cotton wool absorb sound.
- Indians used vibrations to track buffalo. They would put their ears to the ground to try and hear the buffalo.

The Speed of Sound

Slow-flying planes create air pressure disturbances that move at the speed of sound, traveling well in front of the plane. The airflow adjusts and disturbances disperse. Planes flying at the speed of sound experience a dramatic increase in their drag because disturbances accumalate instead of disperse. The airplane has almost caught up with pressure waves it is creating with its foward thrust. Planes flying faster than the speed of sound cause powerful shockwaves because airflow has no time to adjust for them. The amazing photo above shows the actual moment when this happens!

Sound is: – *at sea level* – approx. 1223km /hr (760 mph)

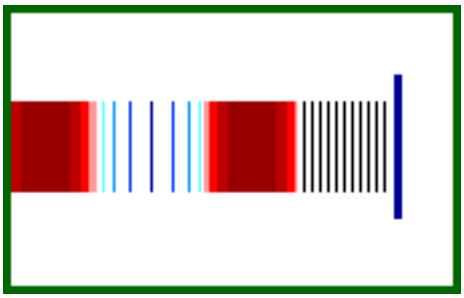
Sound in Water

Sound travels faster through water than through air. This helps animals such as whales to communicate or talk with each other over very long distances. Whales also use sound waves to help them travel through dark water. They send and receive sound waves in the same kind of way as the sonar on a ship or submarine.

Sound Waves

Sound is caused when vibrations causes air to vibrate which causes sound waves which are picked up by your eardrum causing it to vibrate which is translated by your brain into a sound.

Sound needs a medium to travel on egs. gases, solids or liquids. Sound travels in air at about 1,224 Km



It travels in water at about 5,400 Km much faster than air
An echo occurs when a sound bounces off a surface and bounces back to you.

A large vibration causes a large sound and a small vibration causes a small sound.
Sound can also be caused by energy. This energy causes vibration which causes sound.
Vibrations were used by Native Americans to track buffalo they would put their ears to the ground to try and hear the buffalo.

Soft materials such as cotton wool absorb sound, this is why you cannot hear when you drop them.

An Ancient Greek Philosopher called Aristotle believed that sound and light were carried through air like waves. He also said that they couldn't travel through a vaccuum. Many centuries later (the 17th century) scientists could create a vacuum to test Aristotle's theory. An Irish scientist called Robert Boyle created an experiment in 1658. The experiment was that he pumped air from a jar that held a ticking watch. As there was less air left in the jar, he could not hear ticking at all. This proved Aristotle's theory correct.

Sound Intensity

Just as you would use centimetres to measure a science book, you would use decibels to measure the intensity of sound. In other words to measure how powerful sound is.

- If something is 0 decibels it is not powerful enough to be heard.
- Whispering is approximately 10 decibels.
- Wind and leaves rustling is approximately 20 decibels.
- Waves on the seashore measure approximately 40 decibels.
- A shouted conversation measures approximately 70 decibels.
- A vacumn cleaner measures approximately 80 decibels.
- Rock music music measures approximately 100 decibels.
- A jet engine measures approximately 110 decibels.
- The threshold of pain measures at 120 decibels!

So maybe Mum and Dad have a point when they say listening to loud rock music will make you deaf!

The Larynx

The larynx is another name for the voice box. The larynx joins with the pharynx with the trachea. It is made up of nine parts of cartilage and it has two main parts. When you are swallowing the epiglottis which is the upper cartilage covers the voice box to stop food going into the lungs. Whenever you aren't swallowing food the epiglottis opens and the larynx opens as well.
The Larynx and Sound

The larynx plays an important part in voice production. Sound is produced when the vocal cords vibrate as air flows out of the lungs. The adam's apple is in front of the larynx. When boys reach puberty the larynx grows and that causes their voice to deepen.

Ultrasonics: What is it? If you were studying Physics you could study ultrasonics. Ultrasonics is the study of high-frequency sound waves.

Sound Waves: What are they? A vibrating object gives off sound waves and different vibrating objects can give off different amounts of sound waves.

Frequency: What is it? Frequency is the number of sound waves given off by a vibrating object. Frequency is measured in Hertz (or Hz for short) which is the number of sound waves given off by a vibrating object per second.