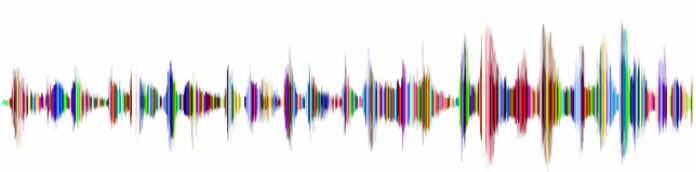
Name _____ *Sound*

How Sound Works

Sound is a vibration that begins with some mechanical movement, like slapping your hand down on a table. The atoms next to where your hand hit the table vibrate, causing adjacent atoms to vibrate. As the vibration travels from atom to atom, the sound travels. The matter through which sound travels is called the medium. Sound can travel through matter in solid, liquid, and gas forms. In fact, sound needs matter in order to travel. In outer space, which is a vacuum (meaning there is no matter), it is quiet.



The speed at which sound vibrations (also known as sound waves) travel through a medium is called the speed of sound. This speed varies depending on the type of matter. For instance, sound moves through dry air at the speed of 768 mph. Sound moves through water four times faster than it moves through air. It moves through steel thirteen ties faster than it moves through air.

Have you ever heard of the sound barrier? Aircraft are said to be breaking the sound barrier when they travel faster than the speed of sound, a speed known as Mach 1. As they exceed the speed of sound, two things happen. Water droplets condense on a flying aircraft. At Mach 1 these water droplets fall away from the craft, creating what looks like a white halo. Aircraft breaking the sound barrier also make a really loud noise called a sonic boom. This noise comes from the fact that because the aircraft is traveling faster than the speed of sound, many sound waves are forced together. A sonic boom is essentially the sound of sound waves colliding.

A sound's volume (how loud it is) is measured in decibels. The louder the sound, the higher the decibels. Sound starts to become painful to hear at about 130 decibels, and very loud sounds can damage your hearing.