Nova’s Guide to the Science of Sound

Listen up, explorers! Let’s tune into the vibrations of the world around us.

- **Sound is created when an object vibrates; these vibrations create sound waves that travel through a medium like air, water, or solids.**
- **The pitch of a sound depends on the frequency of the vibration: high-frequency vibrations produce high-pitched sounds, while low-frequency vibrations produce low-pitched sounds.**
- **Volume, or loudness, is determined by the amplitude of the sound wave; the larger the vibration, the louder the sound will be.**
- **Sound cannot travel through a vacuum, such as outer space, because there are no particles to carry the vibrations.**
- **When sound waves reach our ears, they cause our eardrums to vibrate, which our brain then interprets as the sounds we hear.**

Did you know? Did you know? Sound actually travels four times faster through water than it does through air! This is because particles in liquids are packed closer together, allowing vibrations to pass from one particle to the next much more quickly.

Key vocabulary: Vibration · Medium · Decibel · Frequency · Pitch · Amplitude · Soundwave