

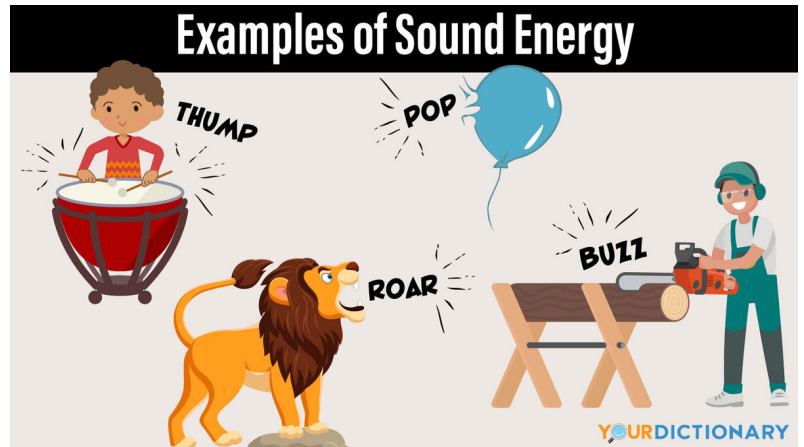
## B4. Energy & Sound

### Energy & Sound

Hi there! Today, let's talk about energy and sound. Energy is all around us, and it comes in different forms. One form of energy is sound, and it's how we hear the world around us!

#### What is Energy?

Energy is the ability to do work or make things move. It is what makes everything happen, from running and jumping to turning on a lightbulb. There are many types of energy, such as light energy from the Sun, heat energy from a hot stove, and even sound energy from our voices.



#### Sound Energy

Sound energy is the energy that makes sound. When you clap your hands, the sound you hear is made of sound energy. When you pluck the strings of a guitar, the music you hear is also made of sound energy. Sound energy travels in waves, just like waves in the ocean.

#### How Sound is Made

Sound is made when something vibrates or moves back and forth really fast. These vibrations travel through the air as sound waves. When sound waves reach our ears, they make our eardrums vibrate, and our brains interpret these vibrations as sound.

#### Pitch and Volume

Sound can have different properties, such as pitch and volume. Pitch is how high or low a sound is. For example, when you hit a drum softly, it produces a low-pitched sound. But if you hit the drum harder, it creates a higher-pitched sound.

Volume, on the other hand, is how loud or soft a sound is. When someone speaks quietly, the volume is low. When someone shouts, the volume is high.

#### Sound and Matter

Sound needs matter, like air or water, to travel through. When you speak or shout, you send sound waves through the air. But in space, where there is no air, sound cannot travel. That's why astronauts use special radios to communicate in space.

#### Echoes

Have you ever shouted in a big empty room and heard your voice come back to you? That's called an echo! An echo happens when sound waves bounce off walls or other objects and come back to our ears. It's like sound playing tag with the walls!

### **Speed of Sound**

Sound travels at different speeds depending on the matter it goes through. In air, sound travels at about 767 miles per hour (1,230 kilometers per hour). In water, it travels even faster at about 3,315 miles per hour (5,320 kilometers per hour). That's why we hear sounds differently underwater!

### **Uses of Sound**

Sound has many uses in our everyday lives. We use sound to communicate with each other through speech and language. We also use sound in music and entertainment to express emotions and tell stories.

1. What is energy?
  - A) The ability to make things move
  - B) The ability to see things clearly
  - C) The ability to feel heat
  - D) The ability to taste different foods
2. What is sound energy?
  - A) The energy that makes light
  - B) The energy that makes sound
  - C) The energy that makes things cold
  - D) The energy that makes things hot
3. How is sound made?
  - A) When something gives off light
  - B) When something moves back and forth really fast
  - C) When something feels very cold
  - D) When something smells really good
4. What are sound waves?
  - A) Waves in the ocean
  - B) Waves of light
  - C) Waves of heat
  - D) Waves that carry sound energy
5. What is pitch?
  - A) How high or low a sound is
  - B) How loud or soft a sound is
  - C) How fast or slow a sound travels
  - D) How far a sound can travel
6. What is volume?
  - A) How high or low a sound is

- B) How loud or soft a sound is
  - C) How fast or slow a sound travels
  - D) How far a sound can travel
7. Why can't sound travel in space?
- A) Because space is too cold
  - B) Because space is too dark
  - C) Because space has no matter for sound to travel through
  - D) Because space is too far away
8. What is an echo?
- A) A type of sound wave
  - B) A loud sound
  - C) A sound that travels through water
  - D) A sound that bounces back
9. How fast does sound travel in air?
- A) 100 miles per hour
  - B) 500 miles per hour
  - C) 767 miles per hour
  - D) 1000 miles per hour
10. What are some uses of sound in our everyday lives?
- A) To make things move
  - B) To communicate with each other through speech and language
  - C) To see things clearly
  - D) To feel heat and cold

## ANSWERS & EXPLANATIONS

1. A - The ability to make things move.
  - Energy is the ability to do work or make things move.
2. B - The energy that makes sound.
  - Sound energy is the energy that makes sound.
3. B - When something moves back and forth really fast.
  - Sound is made when something vibrates or moves back and forth really fast.
4. D - Waves that carry sound energy.
  - Sound waves are waves that carry sound energy.
5. A - How high or low a sound is.
  - Pitch is how high or low a sound is.
6. B - How loud or soft a sound is.
  - Volume is how loud or soft a sound is.
7. C - Because space has no matter for sound to travel through.
  - Sound needs matter, like air or water, to travel through. In space, there is no air for sound to travel through.
8. D - A sound that bounces back.
  - An echo is a sound that bounces back after it hits a surface, like a wall.
9. C - 767 miles per hour.
  - Sound travels at about 767 miles per hour in air.
10. B - To communicate with each other through speech and language.
  - We use sound to communicate with each other through speech and language, among other uses.