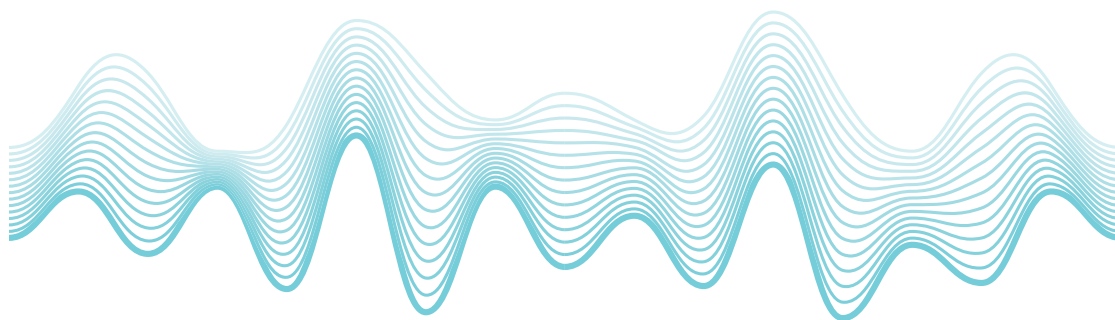
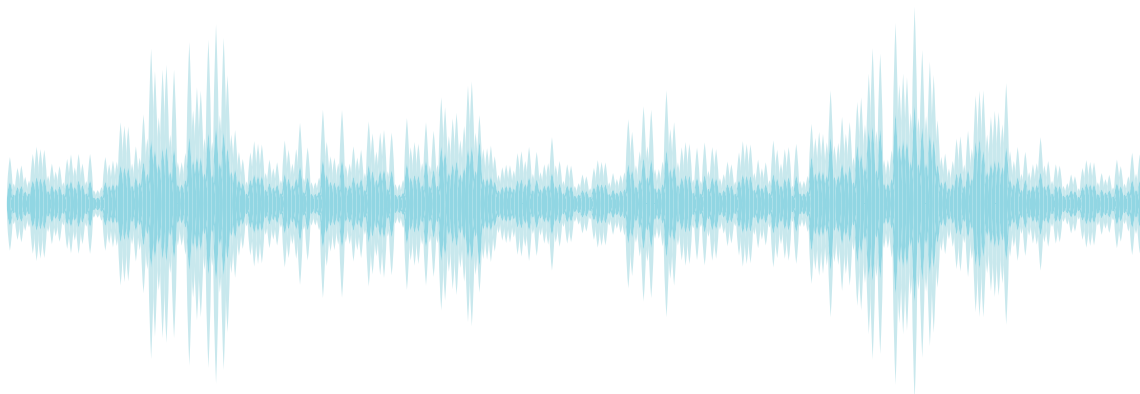


STUDYING VIBRATIONS



The Pattern that Moves

Learn about Vibrations

Everything in the world is always moving, even when it seems still. This movement is called a **vibration**, a tiny back-and-forth motion that carries **energy**. When vibrations travel, they form a **wave** — a pattern that moves energy from one place to another. In the air, these waves create **sound**, which we can hear with our ears. The speed of those vibrations is called **frequency**, and it decides the **pitch**, or how high or low the sound is.

Sound can bounce back as an **echo**, or move through different kinds of matter called a **medium**, such as air, water, or the ground. In **cymatics**, scientists can actually see sound by letting vibrations form shapes in sand or water. Some animals use **ultrasound** or **biosonar** to sense their surroundings — bats and dolphins send out sound waves that reflect off objects, helping them “see” with sound. Inside our bodies, even a **heartbeat** is a steady vibration that keeps us alive. And deep beneath our feet, a **seismic wave** can shake the Earth during an **earthquake**, sometimes followed by smaller **tremors**.

From the soft rhythm of your heartbeat to the roaring rumble of the ground, vibrations are everywhere — they are the invisible pattern that moves through everything.

Fill in the missing letters to complete the words.

- | | |
|--------------------|---------------------|
| 1. ___bra__i___ | 11. h____bea__ |
| 2. wa___ | 12. se__s__i__ ___e |
| 3. __o__n__ | 13. __rt____ake |
| 4. f__eq____c__ | 14. _____ors |
| 5. p__t___ | 15. __os__na__ |
| 6. __n__r__y | |
| 7. e__h__ | |
| 8. __ed__u__ | |
| 9. ___mat___s | |
| 10. _____ra__oun__ | |

vibration
pitch
medium

seismic wave
earthquake
biosonar

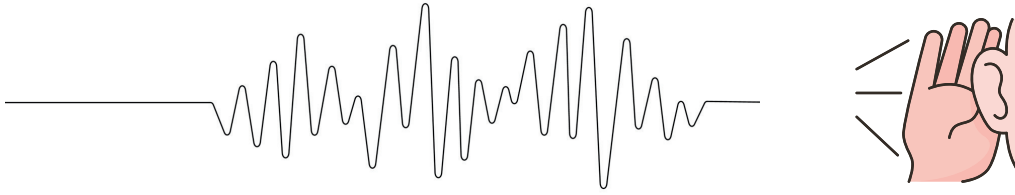
energy
frequency
ultrasound

wave
tremors
cymatics

heartbeat
sound
echo



Vibrations in the Air- Soundwaves



Sound travels through the air as a vibration — tiny back-and-forth movements of air particles that carry energy from one place to another. When something makes a sound, like a drum or a person's voice, it causes the air around it to move in waves. These waves push and pull the air particles, creating patterns called sound waves. Our ears sense these vibrations, and our brains turn them into the sounds we recognize — from music to laughter to thunder in the sky.

Air carries invisible waves that let us hear things happening far away. Some waves move quickly, and others move slowly — this speed is called frequency. High-frequency waves make higher sounds, like a whistle, while low-frequency waves make deeper sounds, like a drumbeat. Even though we can't see them, these sound waves fill the air all around us!

1. What is sound made of?

- A. Light beams
- B. Air vibrations
- C. Water drops
- D. Electric sparks

2. What do we call the patterns made by moving air?

- A. Air lines
- B. Sound waves
- C. Air tunnels
- D. Rain clouds

3. What helps our brains understand sound vibrations?

- A. Our ears
- B. Our hands
- C. Our eyes
- D. Our lungs

4. What does frequency mean?

- A. How fast sound waves move
- B. How loud something is
- C. How far a sound travels
- D. How much air is in a room

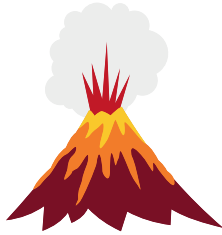
5. Which sound has a high frequency?

- A. Drumbeat
- B. Whistle
- C. Thunder
- D. Footstep

DID YOU KNOW?

Humans can only hear a small part of the vibration frequency spectrum, roughly 20 to 20,000 vibrations per second. Beyond that, countless sounds move through the air unseen and unheard, reminding us that creation hums with design far beyond what our ears can sense.

Vibrations in the Land and Water



The solid ground beneath our feet is always moving, even though we don't feel it. The Earth's surface is made of giant pieces called **tectonic plates**. These plates fit together like **puzzle** pieces and slowly move over time. When they press, pull, or slide past each other, the built-up energy can release suddenly, sending out **vibrations** through the ground.

These vibrations, called **seismic** waves, can cause **earthquakes** or smaller **tremors** that shake the land.

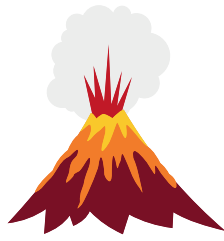
Sometimes, these powerful movements also push **magma** (hot, melted rock) upward, forming a **volcano**. When the pressure becomes too great, a volcano can rumble and erupt, releasing more energy and vibrations into the land around it. Scientists use **seismographs** to record these movements and study how Earth's plates and volcanoes work together in a constantly moving, living planet.



Water moves and carries **energy** just like **land** does. When something disturbs the surface — a falling rock, a raindrop, or even a passing boat — it creates vibrations that spread outward in **waves**. These waves move energy through the water, forming visible **ripples** on ponds, lakes, and oceans. Even though we can't always see the movement, water is constantly shifting and responding to energy around it.

Sometimes, vibrations under the ocean are much stronger. When an earthquake happens beneath the sea, it can push and lift large amounts of water. This sudden movement creates powerful waves called **tsunamis** that travel across the ocean. Most of the time, these waves are small in deep water, but they rise higher and move faster as they reach the shore. Tsunamis show how vibrations in water can carry enormous **energy** — connecting the movement of the land below to the waves above.

Vibrations in the Land and Water



Fill in the Blank



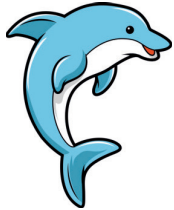
1. The Earth's surface is made of giant pieces called _____.
2. These plates fit together like _____ pieces and slowly move over time.
3. When plates press, pull, or slide past each other, they release energy as _____.
4. These vibrations move through the ground as _____ waves.
5. When the vibrations are strong, they can cause _____ or smaller tremors.
6. Hot, melted rock inside the Earth is called _____.
7. When pressure builds up, a _____ can rumble and erupt.
8. Scientists use special tools called _____ to record movements in the Earth.
9. Vibrations can travel through both _____ and _____.
10. When something disturbs the surface of water, it creates _____ that spread outward.
11. Visible patterns on ponds or lakes formed by vibration are called _____.
12. Water is an excellent carrier of _____.
13. When an earthquake happens beneath the sea, it can push and lift large amounts of _____.
14. The powerful waves created by underwater earthquakes are called _____.
15. Tsunamis show how vibrations in water can carry enormous _____ across the ocean

Vibrations as Communication

Word Search

Vibrations aren't just noise or movement – they're a way for living things to communicate. Many animals use vibrations to send signals through air, water, and even the ground. When a cricket rubs its wings together, the sound waves travel through the air to call other crickets. Elephants make low vibrations that travel through the ground for miles, helping them stay in touch with their herd.

In the water, whales and dolphins use sound vibrations, called biosonar, to find each other and explore their surroundings. Even tiny insects can sense vibrations through leaves or webs, warning them when something is near. These signals show that communication isn't only about words – it's also about patterns of movement that carry meaning through creation.



D	R	E	H	E	N	K	B	J	V	O	A	L	Q
S	C	V	I	B	R	A	T	I	O	N	S	K	U
R	E	R	F	O	K	O	J	T	G	G	P	L	U
A	E	L	I	V	B	S	N	I	H	P	L	O	D
N	P	L	A	C	D	V	I	Y	J	S	C	M	P
O	X	X	E	H	K	A	R	Z	X	G	R	S	R
S	G	D	A	P	W	E	S	I	A	N	E	E	Y
O	R	P	P	M	H	L	T	Z	Z	I	A	C	Y
I	O	J	O	J	A	A	Q	S	W	W	T	Z	S
B	U	F	C	N	U	Z	N	F	E	L	I	E	S
C	N	H	G	F	R	N	Q	T	F	S	O	Z	C
X	D	I	L	W	L	F	R	S	S	Y	N	J	Q
D	S	K	B	T	X	L	J	D	F	R	U	Z	N
Z	E	T	A	C	I	N	U	M	M	O	C	K	H

CRICKETS
VIBRATIONS
CREATION
DOLPHINS
WHALES
WINGS

COMMUNICATE
ELEPHANTS
BIOSONAR
SIGNALS
GROUND
HERD

Can We See Vibrations?

Vibrations are usually invisible — we can't see sound waves moving through air. But when vibrations travel through something we can see, like sand, water, or a drum skin, the pattern begins to appear! The science of making sound visible is called cymatics. Scientists and artists use cymatics to study how different tones create different shapes. Every sound — from a low hum to a high whistle — leaves a pattern behind.

Try It!

You'll Need: Plastic wrap, a small bowl, salt or sugar, and a metal spoon.

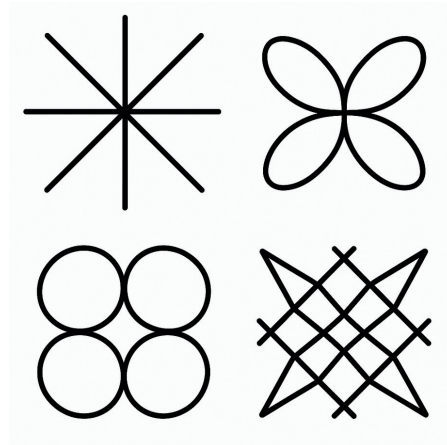
1. Stretch plastic wrap tightly across the top of the bowl.
2. Sprinkle a little salt on the surface.
3. Tap the spoon gently against the side of the bowl.
4. Watch what happens!

The salt jumps and dances into little shapes — that's sound vibrations moving through the air and the plastic wrap.

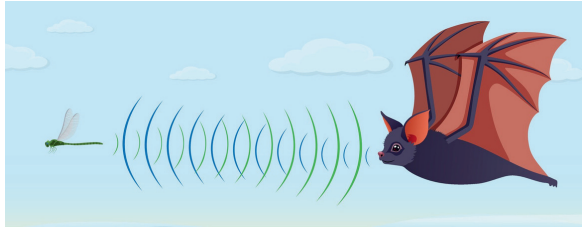
* NOTE: You can also hum toward the bowl or play a tone on a speaker for a stronger effect.

Science Behind It

This experiment shows how sound waves cause movement patterns. Scientists use similar ideas in medicine (like ultrasound imaging) and engineering (to test materials). Seeing vibration helps us understand the hidden patterns that sound makes all around us.



Biosonar & Echolocation

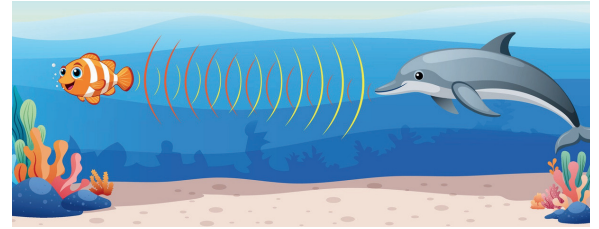


Biosonar is a natural sound system that helps animals sense their surroundings by using sound instead of sight. Many bats, often thought to be blind, can actually see — just not very well in the dark. So instead of depending on their weak eyesight, they rely on their biosonar system to move and hunt at night. A bat sends out tiny sound pulses into the air, and when those sounds hit an object, the echoes return to its ears. The bat's brain uses those echoes to figure out where things are, almost like a living radar.

This allows bats to fly safely, find insects, and navigate in total darkness with incredible precision.

Biosonar and echolocation are both forms of vibration — sound waves moving through air or water that help animals sense the world around them.

DID YOU KNOW?



Echolocation is the process animals use to find objects by listening to how sound bounces back to them. Dolphins are experts at this skill. They send out quick clicking sounds through their foreheads, which travel through the water until they hit something — like a fish or a rock — and then bounce back as echoes.

Special parts in a dolphin's jaw and inner ear pick up those echoes, and the brain turns the sound information into a clear “sound picture.” This helps dolphins know exactly where something is, how big it is, and even what it's made of, allowing them to hunt and communicate in dark or murky water where their eyes can't see well.



Biosonar is the biological system animals use to send and receive sound waves, while echolocation is the process of using those sounds to detect objects.



Biosonar & Echolocation

Complete the sentence

Directions: Read each sentence carefully and fill in the missing word from the Word Box below.

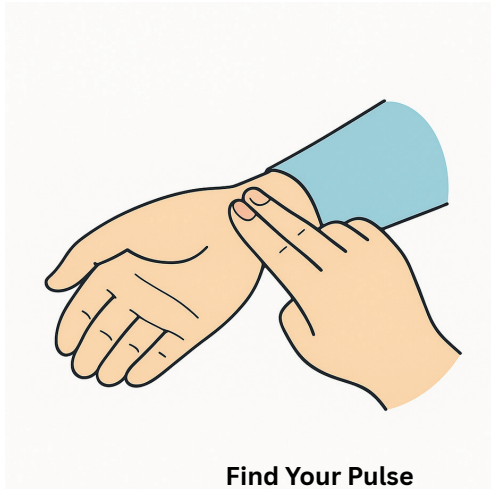


CLICKING	BIOSONAR
SOUND	PICTURE
PROCESS	VISION
ECHOES	ENERGY
VIBRATION	SYSTEM

1. _____ is a natural sound system that helps animals sense their surroundings.
2. Many bats have poor _____, so they rely on sound to move and hunt at night.
3. When a bat sends out sound waves, the echoes that return help it create a _____ of what's around it.
4. A dolphin sends out quick _____ sounds through its forehead to find fish in the water.
5. The sounds that bounce back to a dolphin are called _____.
6. A dolphin's brain turns the echoes into a kind of _____ picture.
7. Both biosonar and echolocation depend on patterns of _____.
8. Sound waves are really tiny forms of _____ traveling through air or water.
9. Biosonar is the animal's built-in _____ for sending and receiving sound.
10. Echolocation is the _____ of using sound to find objects.

Your Internal Vibrations

Find Your Pulse



Find Your Pulse

Your heart sends out tiny waves every time it beats. These waves travel through your arteries—the tubes that carry blood away from your heart. One of the easiest places to feel that vibration is on your radial artery, found on the thumb side of your wrist.

How to Find It:

- Hold out one arm with your palm facing up.
- Use your other hand and place your index and middle fingers gently on the inside of your wrist, just below your thumb.
- Press lightly until you feel a tiny bump or thump under your fingers. That's your pulse—the vibration of your heart sending blood through your body!
- Once you feel it, count the beats for 15 seconds while watching a clock or timer.
- Multiply that number by 4 to find your heartbeats per minute (BPM).



Find Your Pulse

Your heart's vibration travels through many arteries in your body. One of the strongest is the carotid artery, found on each side of your neck. This artery carries blood straight from your heart to your brain — that's why you can feel each beat clearly there.

How to Find It:

- Sit or stand comfortably and relax your shoulders.
- Use your index and middle fingers (never your thumb!) and place them gently on one side of your neck, just below your jawline.
- Move your fingers slowly until you feel a steady thump-thump. That's your carotid pulse — the same heartbeat you felt at your wrist!
- Press very lightly. You only need a gentle touch to feel it. (Pressing too hard can stop the blood flow for a moment — so be gentle!)
- Once you find your pulse, count the beats for 15 seconds and multiply by 4 to find your heartbeats per minute (BPM).

Try This!

Count your pulse while sitting quietly, then again after jumping or jogging in place for one minute. Which one was faster? Why do you think your heart speeds up when you move?

Your Internal Vibrations

Your body is always in motion—even when you're still. Deep inside, your heart creates a steady vibration called a heartbeat. Each beat sends waves of blood and energy through your body, keeping every cell supplied with oxygen and nutrients. You can feel this vibration by finding your pulse on your wrist or neck. That gentle thump beneath your fingers is the rhythm of life itself.

Doctors and scientists can also see this rhythm using special machines like an EKG (electrocardiogram). An EKG shows the electrical signals that make your heart beat, drawn as a line that moves up and down in repeating waves. Each wave shows when the heart contracts and relaxes. This pattern proves that your heart follows an organized, repeating design—vibration turned into rhythm, rhythm turned into life.

1. Your heart keeps your body alive by sending blood and energy through it.

TRUE or FALSE

2. You can feel your body's vibration by finding your pulse on your wrist or neck.

TRUE or FALSE

3. The heart beats randomly, with no pattern or rhythm.

TRUE or FALSE

4. An EKG is a tool that helps scientists and doctors see how the heart is beating

TRUE or FALSE

5. The up-and-down line on an EKG shows the electrical signals that make the heart contract and relax.

TRUE or FALSE

6. The heartbeat is one example of vibration that follows a repeating design.

TRUE or FALSE

7. Your heart only vibrates when you are running or exercising.

TRUE or FALSE

The Smallest of Vibrations

CRYPTOGRAM

Everything in the universe — every rock, tree, animal, and even you — is made of tiny particles called atoms. These atoms are always moving, even when things look completely still. The parts inside them, like protons, neutrons, and electrons, are constantly spinning and vibrating. These tiny movements are signs of energy.

When something warms up, the atoms move faster, and when it cools down, they slow down. This movement doesn't make energy travel — it shows that energy is already there, alive inside everything in creation. From the smallest atom to the largest planet, vibrations connect all matter in a pattern of motion and energy that never stops moving.

A	B	C	D	E	F	G	H	I	J	K	L	M
3	18	24	22	17	5	14	4	10	20	21	25	12

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
9	13	8	1	15	26	11	7	19	6	23	16	2

19 10 18 15 3 11 10 13 9 26

3 15 17 17 19 17 9 5 13 7 9 22

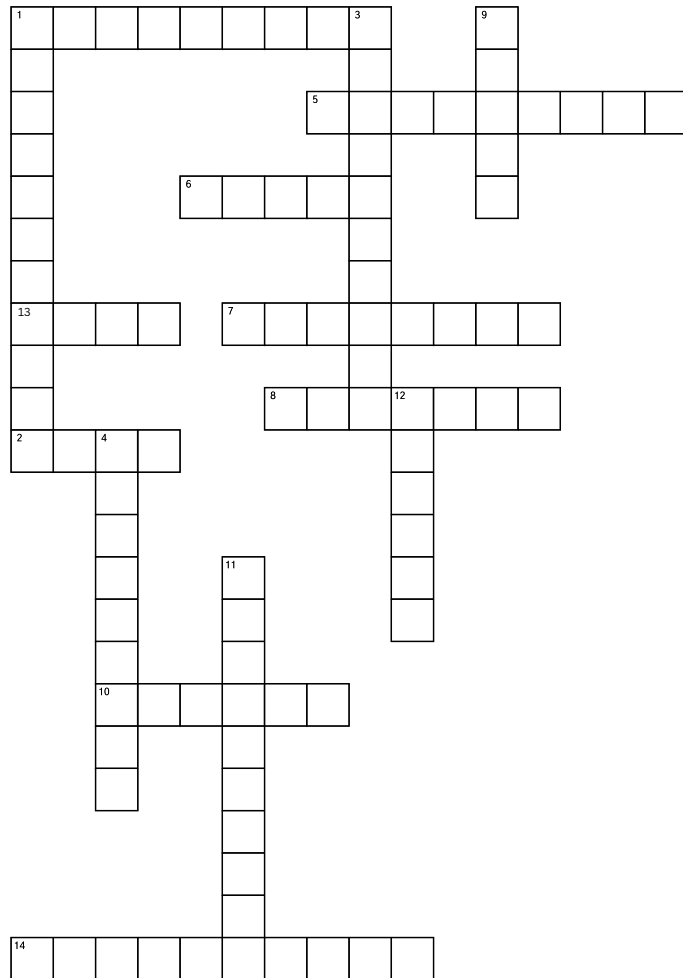
10 9 3 11 13 12 26

VIBRATIONS



CROSSWORD

VIBRATIONS
WAVE
SOUND
FREQUENCY
PITCH
ENERGY
ECHO
MEDIUM
CYMATICS
ULTRASOUND
HEARTBEAT
SEISMIC WAVE
EARTHQUAKE
TREMORS
SOUND WAVE



Across:

1. A moving pattern of compressed air that lets us hear.
2. A sound that bounces off a surface and returns to your ears.
5. How many times something vibrates in one second.
6. How high or low a sound is, depending on vibration speed.
7. The study of visible sound patterns made by vibrations.
8. Small or gentle vibrations felt before or after a larger earthquake.
10. The ability to make things move or change.
13. A pattern of motion that moves energy from one place to another.
14. Sound waves too high for humans to hear, used by bats and dolphins.

Down:

1. A vibration that moves through Earth during an earthquake.
3. A shaking of the ground caused by vibrations moving through Earth.
4. The pulsing vibration that moves blood through your body.
9. Energy made by things that vibrate and travel through air, water, or solids
11. A back-and-forth movement that carries energy
12. The material (like air, water, or solid) through which a wave travels.

Learn about Vibrations

Everything in the world is always moving, even when it seems still. This movement is called a **vibration**, a tiny back-and-forth motion that carries **energy**. When vibrations travel, they form a **wave** — a pattern that moves energy from one place to another. In the air, these waves create **sound**, which we can hear with our ears. The speed of those vibrations is called **frequency**, and it decides the **pitch**, or how high or low the sound is.

Sound can bounce back as an **echo**, or move through different kinds of matter called a **medium**, such as air, water, or the ground. In **cymatics**, scientists can actually see sound by letting vibrations form shapes in sand or water. Some animals use **ultrasound** or **biosonar** to sense their surroundings — bats and dolphins send out sound waves that reflect off objects, helping them “see” with sound. Inside our bodies, even a **heartbeat** is a steady vibration that keeps us alive. And deep beneath our feet, a **seismic wave** can shake the Earth during an **earthquake**, sometimes followed by smaller **tremors**.

From the soft rhythm of your heartbeat to the roaring rumble of the ground, vibrations are everywhere — they are the invisible pattern that moves through everything.

Fill in the missing letters to complete the words.

1. vibration

11. heartbeat

2. wave

12. seismicwave

3. sound

13. earthquake

4. frequency

14. tremors

5. pitch

15. biosonar

6. energy

7. echo

8. medium

9. cymatics

10. ultrasond

vibration
pitch
medium

seismic wave
earthquake
biosonar

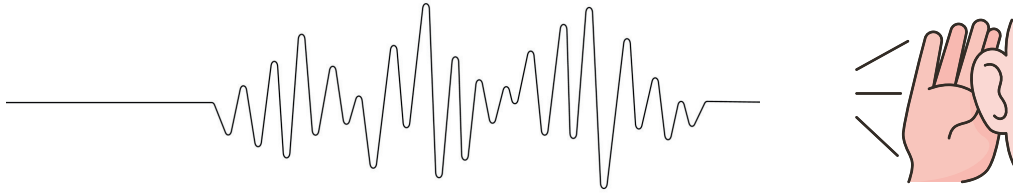
energy
frequency
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wave
tremors
cymatics

heartbeat
sound
echo



Vibrations in the Air- Soundwaves



Sound travels through the air as a vibration – tiny back-and-forth movements of air particles that carry energy from one place to another. When something makes a sound, like a drum or a person's voice, it causes the air around it to move in waves. These waves push and pull the air particles, creating patterns called sound waves. Our ears sense these vibrations, and our brains turn them into the sounds we recognize – from music to laughter to thunder in the sky.

Air carries invisible waves that let us hear things happening far away. Some waves move quickly, and others move slowly – this speed is called frequency. High-frequency waves make higher sounds, like a whistle, while low-frequency waves make deeper sounds, like a drumbeat. Even though we can't see them, these sound waves fill the air all around us!

1. What is sound made of?

- A. Light beams
- ☒ B. Air vibrations
- C. Water drops
- D. Electric sparks

2. What do we call the patterns made by moving air?

- A. Air lines
- ☒ B. Sound waves
- C. Air tunnels
- D. Rain clouds

3. What helps our brains understand sound vibrations?

- ☒ A. Our ears
- B. Our hands
- C. Our eyes
- D. Our lungs

4. What does frequency mean?

- ☒ A. How fast sound waves move
- B. How loud something is
- C. How far a sound travels
- D. How much air is in a room

5. Which sound has a high frequency?

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- ☒ B. Whistle
- C. Thunder
- D. Footstep

DID YOU KNOW?

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Vibrations in the Land and Water



Fill in the Blank



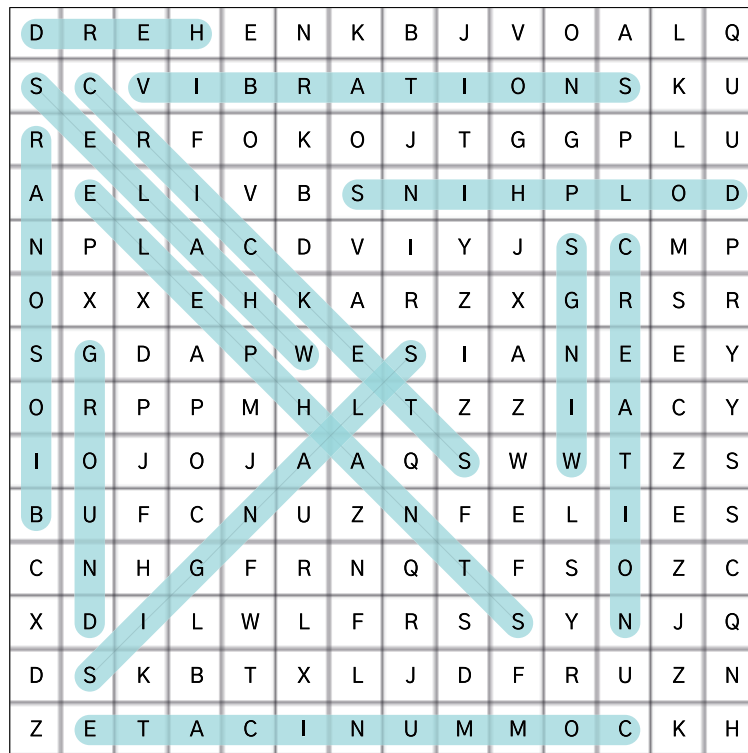
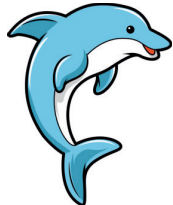
1. The Earth's surface is made of giant pieces called **tectonic plates**.
2. These plates fit together like **puzzle** pieces and slowly move over time.
3. When plates press, pull, or slide past each other, they release energy as **vibrations**.
4. These vibrations move through the ground as **seismic** waves.
5. When the vibrations are strong, they can cause **earthquakes** or smaller tremors.
6. Hot, melted rock inside the Earth is called **magma**.
7. When pressure builds up, a **volcano** can rumble and erupt.
8. Scientists use special tools called **seismographs** to record movements in the Earth.
9. Vibrations can travel through both **land** and **water**.
10. When something disturbs the surface of water, it creates **waves** that spread outward.
11. Visible patterns on ponds or lakes formed by vibration are called **ripples**.
12. Water is an excellent carrier of **energy**.
13. When an earthquake happens beneath the sea, it can push and lift large amounts of **water**.
14. The powerful waves created by underwater earthquakes are called **tsunamis**.
15. Tsunamis show how vibrations in water can carry enormous **energy** across the ocean.

Vibrations as Communication

Word Search

Vibrations aren't just noise or movement — they're a way for living things to communicate. Many animals use vibrations to send signals through air, water, and even the ground. When a cricket rubs its wings together, the sound waves travel through the air to call other crickets. Elephants make low vibrations that travel through the ground for miles, helping them stay in touch with their herd.

In the water, whales and dolphins use sound vibrations, called biosonar, to find each other and explore their surroundings. Even tiny insects can sense vibrations through leaves or webs, warning them when something is near. These signals show that communication isn't only about words — it's also about patterns of movement that carry meaning through creation.



CRICKETS
VIBRATIONS
CREATION
DOLPHINS
WHALES
WINGS

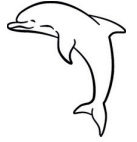
COMMUNICATE
ELEPHANTS
BIOSONAR
SIGNALS
GROUND
HERD



Biosonar & Echolocation

Complete the sentence

Directions: Read each sentence carefully and fill in the missing word from the Word Box below.



CLICKING	BIOSONAR
SOUND	PICTURE
PROCESS	VISION
ECHOES	ENERGY
VIBRATION	SYSTEM

1. BIOSONAR is a natural sound system that helps animals sense their surroundings.
2. Many bats have poor VISION, so they rely on sound to move and hunt at night.
3. When a bat sends out sound waves, the echoes that return help it create a PICTURE of what's around it.
4. A dolphin sends out quick CLICKING sounds through its forehead to find fish in the water.
5. The sounds that bounce back to a dolphin are called ECHOES.
6. A dolphin's brain turns the echoes into a kind of SOUND picture.
7. Both biosonar and echolocation depend on patterns of VIBRATION.
8. Sound waves are really tiny forms of ENERGY traveling through air or water.
9. Biosonar is the animal's built-in SYSTEM for sending and receiving sound.
10. Echolocation is the PROCESS of using sound to find objects.

Your Internal Vibrations

Your body is always in motion—even when you're still. Deep inside, your heart creates a steady vibration called a heartbeat. Each beat sends waves of blood and energy through your body, keeping every cell supplied with oxygen and nutrients. You can feel this vibration by finding your pulse on your wrist or neck. That gentle thump beneath your fingers is the rhythm of life itself.

Doctors and scientists can also see this rhythm using special machines like an EKG (electrocardiogram). An EKG shows the electrical signals that make your heart beat, drawn as a line that moves up and down in repeating waves. Each wave shows when the heart contracts and relaxes. This pattern proves that your heart follows an organized, repeating design—vibration turned into rhythm, rhythm turned into life.

1. Your heart keeps your body alive by sending blood and energy through it.

☒ TRUE or ☐ FALSE

2. You can feel your body's vibration by finding your pulse on your wrist or neck.

☒ TRUE or ☐ FALSE

3. The heart beats randomly, with no pattern or rhythm.

☐ TRUE or ☒ FALSE

4. An EKG is a tool that helps scientists and doctors see how the heart is beating

☒ TRUE or ☐ FALSE

5. The up-and-down line on an EKG shows the electrical signals that make the heart contract and relax.

☒ TRUE or ☐ FALSE

6. The heartbeat is one example of vibration that follows a repeating design.

☒ TRUE or ☐ FALSE

7. Your heart only vibrates when you are running or exercising.

☐ TRUE or ☒ FALSE



The Smallest of Vibrations

CRYPTOGRAM

Everything in the universe — every rock, tree, animal, and even you — is made of tiny particles called atoms. These atoms are always moving, even when things look completely still. The parts inside them, like protons, neutrons, and electrons, are constantly spinning and vibrating. These tiny movements are signs of energy.

When something warms up, the atoms move faster, and when it cools down, they slow down. This movement doesn't make energy travel — it shows that energy is already there, alive inside everything in creation. From the smallest atom to the largest planet, vibrations connect all matter in a pattern of motion and energy that never stops moving.

A	B	C	D	E	F	G	H	I	J	K	L	M
3	18	24	22	17	5	14	4	10	20	21	25	12

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
9	13	8	1	15	26	11	7	19	6	23	16	2

V I B R A I I Q N S
19 10 18 15 3 11 10 13 9 26

A R E E V E N E Q U N D
3 15 17 17 19 17 9 5 13 7 9 22

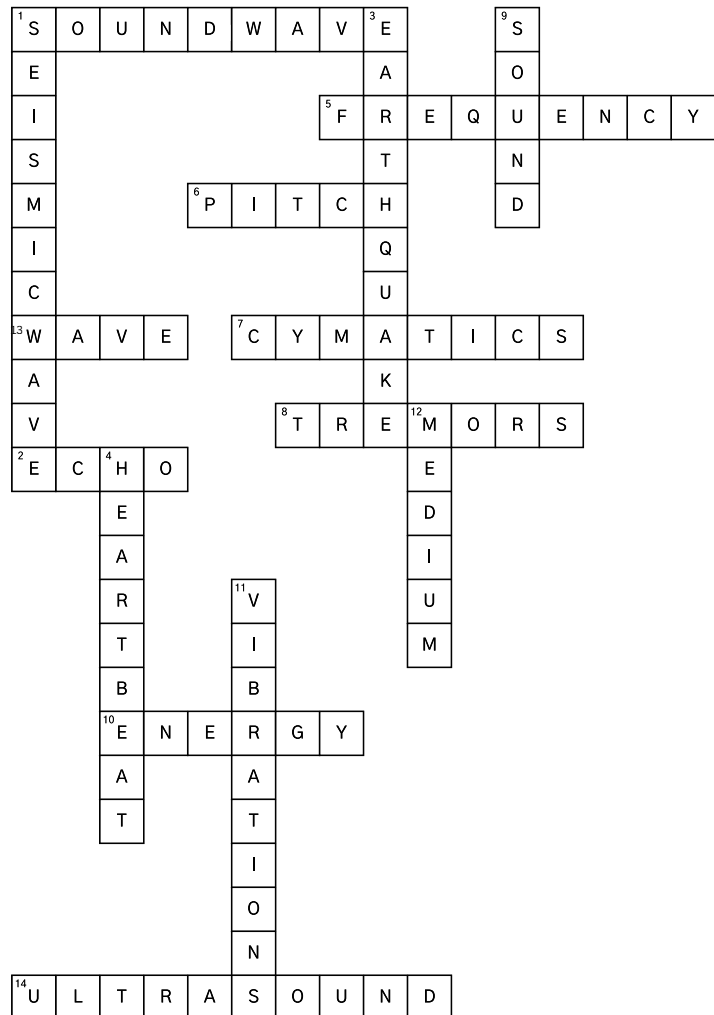
I N A I Q M S
10 9 3 11 13 12 26

VIBRATIONS



CROSSWORD

VIBRATIONS
WAVE
SOUND
FREQUENCY
PITCH
ENERGY
ECHO
MEDIUM
CYMATICS
ULTRASOUND
HEARTBEAT
SEISMIC WAVE
EARTHQUAKE
TREMORS
SOUND WAVE



Across:

1. A moving pattern of compressed air that lets us hear.
2. A sound that bounces off a surface and returns to your ears.
5. How many times something vibrates in one second.
6. How high or low a sound is, depending on vibration speed.
7. The study of visible sound patterns made by vibrations.
8. Small or gentle vibrations felt before or after a larger earthquake.
10. The ability to make things move or change.
13. A pattern of motion that moves energy from one place to another.
14. Sound waves too high for humans to hear, used by bats and dolphins.

Down:

1. A vibration that moves through Earth during an earthquake.
3. A shaking of the ground caused by vibrations moving through Earth.
4. The pulsing vibration that moves blood through your body.
9. Energy made by things that vibrate and travel through air, water, or solids
11. A back-and-forth movement that carries energy
12. The material (like air, water, or solid) through which a wave travels.