



Lesson Plan: Sound

Grade Level: 3

Subject: Physical Science

Duration: 45–60 min

NGSS 4-PS4-1: Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** how sound is produced by vibrations and travels as waves.
- **Describe** properties of sound including pitch, frequency, amplitude, and volume.
- **Explain** how sound travels through different mediums (solids, liquids, and gases).



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Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (<https://newpathworksheets.com/api/guide/study-guide-science-grade-3-sound-1.pdf>)
- Vocabulary matching worksheet (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-sound-1-1.pdf>)
- Ear Diagram and Pitch Worksheet (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-sound-1-1.pdf>)



- Sound Assessment Quiz (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-sound-1-0.pdf>)

Lesson Procedure

Step 1: Introduction (5 minutes)

- Hook students by asking them to close their eyes, listen to sounds in the room, and guess the source.
- Ask: 'How do you think the sound travels from the object to your ears?'
- Introduce the concept that all sound starts with a vibration.

Step 2: Direct Instruction (15 minutes)

- Distribute the Study Guide and read about properties of sound (Amplitude, Frequency, Wavelength) (https://newpathworksheets.com/api/guide/study_guide_science_grade_3)



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- Students answer True/False questions regarding vibrations and string length on the worksheet.

Step 5: Assessment (10 minutes)

- Administer the Sound Quiz to test understanding of sound waves, mediums, and the ear. (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-sound-1-0.pdf>)
- Review answers to check if students understand that sound travels fastest in solids.



Differentiation Strategies

For advanced learners:

- Research why sound cannot travel in a vacuum (space) and present findings.
- Compare the speed of sound in water versus steel using data from the Study Guide.

For learners needing support:

- Use a physical slinky to demonstrate compression waves and vibrations.
- Provide a word bank and partially labeled ear diagram for the Independent Practice.

Extension Activities

- Create 'string telephones' to demonstrate how sound travels through solids.
- Build simple musical instruments (like rubber band guitars) to explore how changing tension



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SOUND

Sound is energy that travels in a wave that is caused by vibrations.

Vibrations are movements made rapidly back and forth. Vibrations travel through the air and into your ear. You hear sounds when vibrating air causes your eardrum to vibrate. Strong vibrations make loud sounds while gentle vibrations make quieter sounds. Vibrations caused by **sound waves** cause us to hear sounds.

Sound waves are the invisible movement of **sound energy** that travels away from the source of the sound. The farther **sound waves** travel, the quieter the sound becomes.

Objects that make sound create high and low sounds. Pitch is the measure of how high or low a sound is. The **pitch** of a sound depends on how fast the



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Lesson Checkpoint: What does the pitch of a sound depend on?

If you played an instrument with strings, you could see that the shorter the length of the string, the higher the sound it creates. The longer the length of the string, the lower the sound it creates.

Sound travels through matter. Sound waves travel through the air by spreading out in all directions. Sound waves are able to move through solids, liquids, and gases, which are the three states of matter. Sound waves travel the **fastest through solids** because the particles in solids are very close together.



Medium	Speed (m/s)
air (0°C)	331
air (20°C)	343
air (100°C)	366
water (20°C)	1,482



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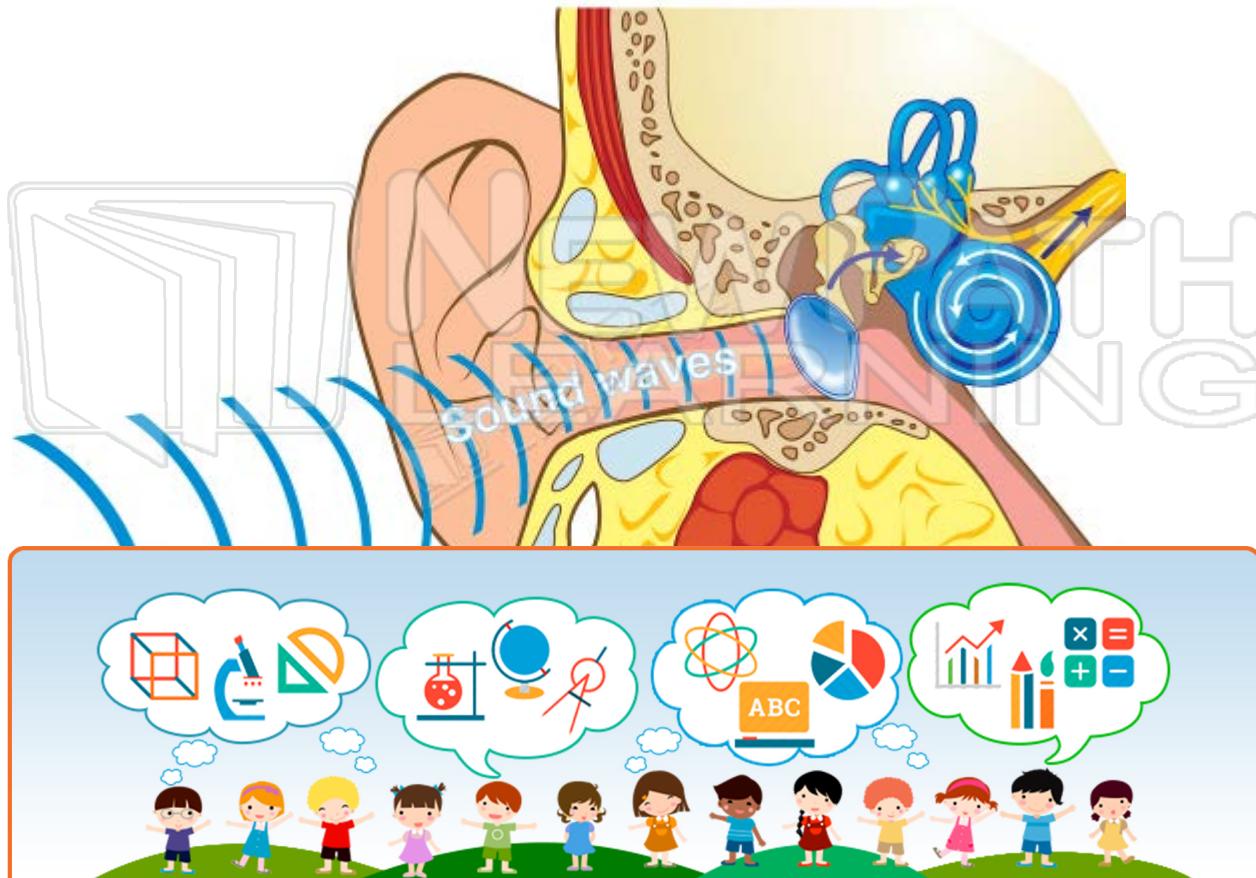
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Turn up the volume. **Volume**, when referring to sound, is how loud or quiet a sound is. Sound can be measured in units called **decibels**.



How We Hear

We use different parts of our ears to hear sounds.



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The vibrations of the tiny hairs inside the liquid of our **inner ear** then send signals to our brain which then recognizes the sound we are hearing.

Lesson Checkpoint: Where does sound travel after it reaches your outer ear?

You make sounds when you talk because your vocal chords **vibrate** when air passes through them.



Name _____ Class _____ Date _____

1

The **arrow** on the diagram is pointing to the _____.

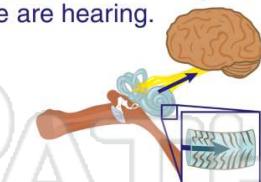
- A** inner ear
- B** middle ear
- C** outer ear
- D** ear canal



2

The vibrations of tiny hairs inside the liquid of our **inner ear** send signals to our _____, which recognizes the sound we are hearing.

- A** liver
- B** blood
- C** brain
- D** heart



3

What do the **vibrations** caused by sound waves cause us to do?

- A** smell sound
- B** touch sound
- C** see sound



4

You make **sounds** when you talk because your _____ vibrate when air passes through them.

- A** feet
- B** vocal chords



5

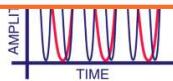


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- B** fast
- C** high
- D** low



- B** the higher the sound it creates
- C** the louder the sound it creates
- D** the quieter the sound it creates

9

On a stringed instrument, the **longer** the length of the string _____.

- A** the quieter the sound it creates
- B** the louder the sound it creates
- C** the higher the sound it creates
- D** the lower the sound it creates



10

The **pitch** of a sound depends on the frequency of the vibrations. What does the **sound frequency** refer to?

- A** the number of vibrations in a certain time frame
- B** how loud a sound is
- C** how quiet a sound is
- D** where the sound is coming from

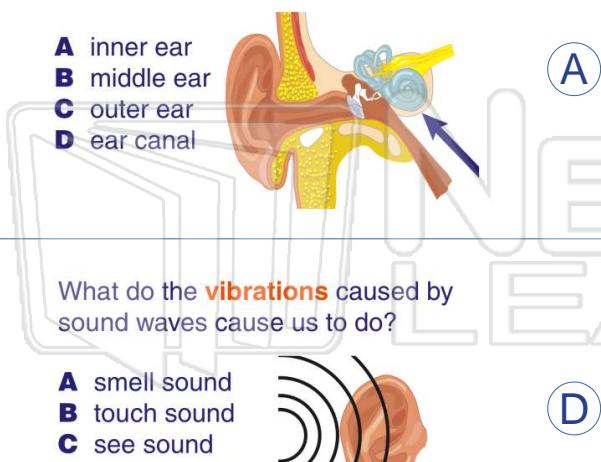


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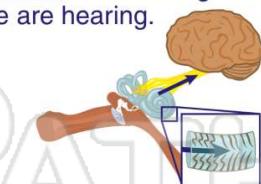
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The vibrations of tiny hairs inside the liquid of our **inner ear** send signals to our _____, which recognizes the sound we are hearing.

- A** liver
- B** blood
- C** brain
- D** heart



C

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What do the **vibrations** caused by sound waves cause us to do?

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B

5



C

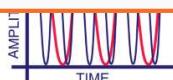
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B

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- C** high
- D** low



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A

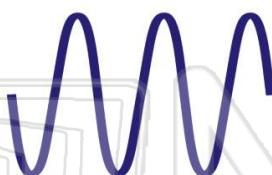


Name _____ Class _____ Date _____

1

Sound is **energy** that travels in a wave and is caused by _____.

- A** decibels
- B** friction
- C** vibrations
- D** matter



2

What are **vibrations**?

- A** beats on a drum
- B** movements made rapidly back and forth
- C** slow movements
- D** sound waves



3

Vibrations travel through the air and into your ear. You hear sounds when vibrating air causes your _____ to vibrate.

- A** eardrum
- B** earlobe



4

How does your **outer ear** help you hear?



- A** keeps sound waves from vibrating
- B** keeps our ears free from dirt
- C** blocks sound waves from

5



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- D** tiny bones in the middle ear



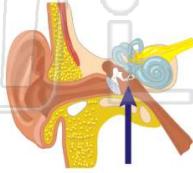
- C** inner ear
- D** earlobe



9

The **arrow** is pointing to the _____ on this diagram.

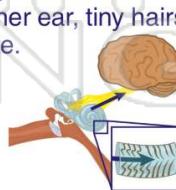
- A** inner ear
- B** outer ear
- C** little bones in the middle ear
- D** ear canal



10

Our **inner ear** is just beyond the little bones in our ear. Part of the **inner ear** is filled with _____. When the vibrations reach the inner ear, tiny hairs inside this liquid vibrate.

- A** oxygen
- B** hot wax
- C** liquid
- D** carbon dioxide



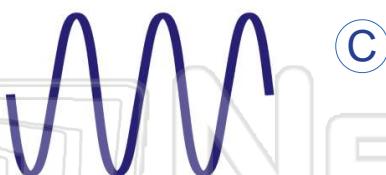


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**C**

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**B**

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A

- D** tiny bones in the middle ear



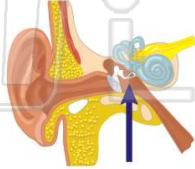
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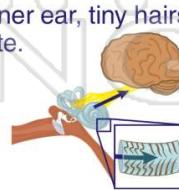
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- A** oxygen
- B** hot wax
- C** liquid
- D** carbon dioxide

**C**



Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Vibrations

Pitch

Frequency

Sound

Voltage

Decibel

1. - a unit for measuring the intensity of sound



2. of time - the number of waves (vibrations) in a certain period



3.

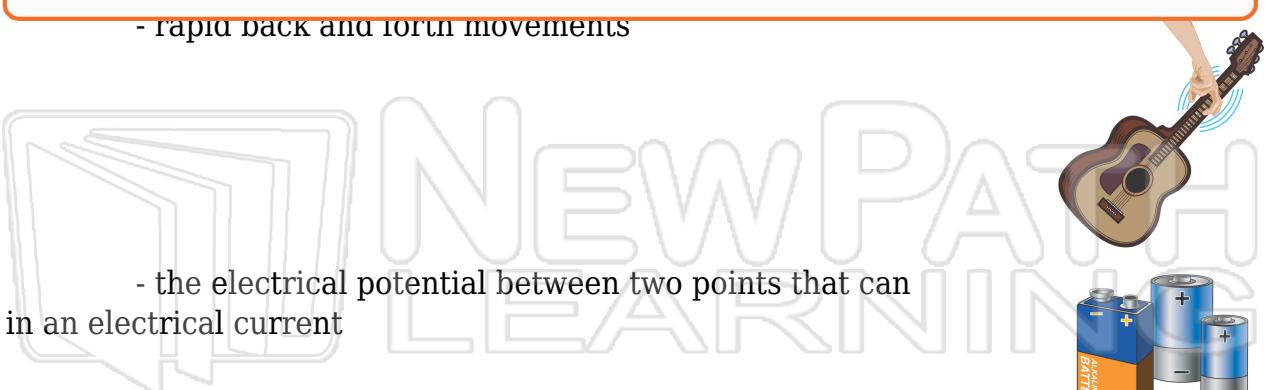


4. vibrati

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5. - rapid back and forth movements



6. - the electrical potential between two points that can result in an electrical current



Name _____ Class _____ Date _____

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Vibrations

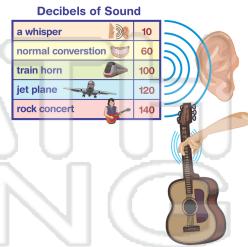
Pitch

Frequency

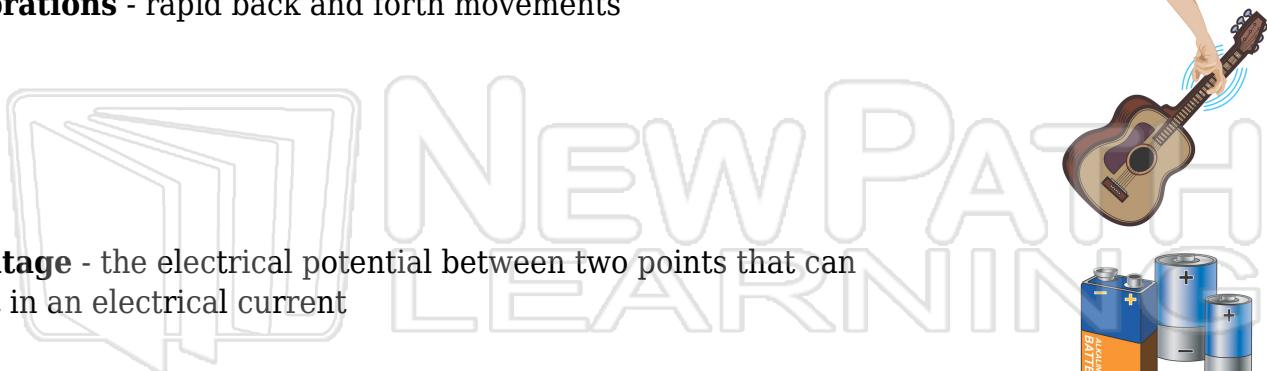
Sound

Voltage

Decibel

1. decibel - a unit for measuring the intensity of sound**2. frequency** - the number of waves (vibrations) in a certain period of time**3. pitch****PREVIEW**

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5. vibrations - rapid back and forth movements**6. voltage** - the electrical potential between two points that can result in an electrical current