# Contents

# What Is Sound?

*Textbook pages 242-245* | **Lesson 1**

**Read 13.1 "What Is Sound?" on pages 242-245 of the textbook.**

## Exploring the Lesson

**A** **Write the definition of the vocabulary word.**

1. **wave:** _____

**B** **Write the word that completes each sentence.**

2. Sound is a wave of _____.
3. Sound waves are created when a force causes an object to _____.

**C** **Place a check mark beside the answers to the question.**

4. What four forces would cause a sound?
   a. ____ a bat hitting a ball
   b. ____ sun shining on a garden
   c. ____ a volcano erupting
   d. ____ stones lying on the ground
   e. ____ a finger plucking a rubber band
   f. ____ the wind rattling an old window

**D** **Number the steps in order.**

5. How does the sound of clapping reach your ears?

   a. ____ Your hands come together with force.

   b. ____ Your ears hear the sound of clapping.

   c. ____ The energy travels as a sound wave through the air.

   d. ____ The force causes the air molecules to vibrate.

**E** **Circle the letters of the answers to each question.**

6. What are two ways that sound waves travel?
   a. away from the source like ripples on a pond
   b. through clear objects like light shining through a window
   c. against each other like a row of falling dominoes

7. What two things happen as sound waves move farther from their source?
   a. They spread out.
   b. They get louder.
   c. They become softer.

8. Which two statements are true about Krakatoa?
   a. Sound waves traveled thousands of miles from Krakatoa.
   b. The sound waves were louder near Krakatoa than farther away.
   c. The eruptions from Krakatoa released very little energy.

**F** **Write the answer to the question.**

△ 9. What are some ways sound is helpful?

_____

_____

_____

# Sound and Matter

*Textbook pages 246-251* | **Lesson 2**

**Read 13.2 "Sound and Matter" on pages 246-251 of the textbook.**

## Exploring the Lesson

**A** **Write the vocabulary word for each definition.**

1. _____ to take in or soak up
2. _____ the repeating of a sound

**B** **Write *true* if the statement is true. If the statement is false, write the correct word on the blank to replace the word in italics.**

3. _____ Sound waves must have *matter* to travel through.
4. _____ The energy of a sound wave is carried by *molecules* bumping into each other.
5. _____ Sound waves can travel through *solids*, liquids, and gases.
6. _____ The moon has no *atmosphere* for sound to travel through.
7. _____ *Light* cannot travel through outer space.

**C** **Write *gas, liquid,* or *solid* to describe what type of matter each sound is traveling through.**

8. _____ mouse scratching in a wall
9. _____ fish making clicking sounds in water
10. _____ bell chimes traveling through air
11. _____ someone tapping on a windowpane
12. _____ whispers traveling through the air

**D** **Write words from the box to complete the chart.**

| fastest | gas | liquid | solid | slowest |
|---|---|---|---|---|

| Speed of Sound Through Matter | | | |
|---|---|---|---|
| **Form of Matter** | 13. _____ | 14. _____ | 15. _____ |
| **Molecules** | far apart | close together | tightly bonded |
| **Speed** | 16. _____ | | 17. _____ |

**E** **Write the answer to each question.**

18. What happens when sound waves hit something hard and smooth?

_____

19. Why are sounds quieter in a room that contains many soft materials than in a room with a polished floor and block walls? _____

_____

**F** **Circle *echo* or *absorb* to show how sound will interact with each material.**

20. soft curtains **echo** **absorb**
21. carpeted floor **echo** **absorb**
22. stone wall of a cave **echo** **absorb**
23. rocky mountaintop **echo** **absorb**
24. metal wall of a shed **echo** **absorb**
25. cushioned chair **echo** **absorb**
26. hard, smooth gym floor **echo** **absorb**

## We Remember

**G** **Write a word from the box to complete each sentence.**

| energy | force | vibrate | wave |
|---|---|---|---|

27. A _____ is a pattern of motion that carries energy.
28. Sound is a wave of _____.
29. Sound waves are created when a _____ causes an object to _____.

**H** **Underline the bold word that completes each sentence.**

30. As sound waves spread out from their source like ripples on a pond, they become **louder, softer.**
31. Molecules of **air, light** in a sound wave bump against each other like a row of falling dominoes.

# Measuring Sound

*Textbook pages 252-255* | **Lesson 3**

**Read 13.3 “Measuring Sound” on pages 252-255 of the textbook.**

## Exploring the Lesson

**A** **Write the letter of each vocabulary word beside its definition.**

1. _____ a measure of how loud a sound is
2. _____ the highness or lowness of a sound
3. _____ the unit used to measure how loud a sound is

a. decibel
b. pitch
c. volume

**B** **Number the sounds in order from softest to loudest.**
Use the chart on page 253 of the textbook.

4. a. _____ person breathing
   b. _____ person talking (conversation)
   c. _____ ambulance or police siren
   d. _____ car or truck traffic
   e. _____ leaves rustling

**C** **Write the answer to each question.**

5. What is one sound from the chart that is 100 decibels or higher?

   _____

6. What is one sound from the chart that is lower than 50 decibels?

   _____

**D** **Underline the bold word that completes each sentence.**

7. A sound with loud volume has a **weak, strong** vibration.
8. A sound with a high pitch has a **fast, slow** vibration.
9. If you adjust the loudness of music being played, you changed the **volume, pitch.**
10. Singing a low note in a song is an example of **volume, pitch.**
11. Someone with a soft voice has less **volume, pitch** than someone with a loud voice.
12. A bass drum has a lower **volume, pitch** than a trumpet.

**E** **Circle *soft* or *loud* for the volume of each sound, if it is nearby. Circle *high* or *low* for the pitch of each sound.**

| | Volume | | | Pitch | | |
|---|---|---|---|---|---|---|
| 13. kitten purring | **soft** | or | **loud** | **high** | or | **low** |
| 14. policeman blowing a whistle | **soft** | or | **loud** | **high** | or | **low** |
| 15. thunder booming | **soft** | or | **loud** | **high** | or | **low** |
| 16. mosquito whining | **soft** | or | **loud** | **high** | or | **low** |

## We Remember

**F** **Write the definition of each vocabulary word.**

17. **absorb:** _____
18. **echo:** _____

**G** **Write *gas, liquid,* or *solid* to complete each sentence.** One choice will not be used.

19. Sound moves fastest through a _____ because the molecules are tightly bonded.
20. Sound moves slowest through a _____ because the molecules are far apart.

**H** **Circle the letter of the answer to each question.**

21. What do sound waves need so they can travel?
    a. matter
    b. heat energy
    c. light waves

22. Where can sound not travel?
    a. in a cave
    b. deep in the ocean
    c. through outer space

23. What causes an echo?
    a. The vibrating molecules are tightly bonded to each other.
    b. Sound waves hit something hard and smooth and bounce back.
    c. Air molecules travel to a hard surface and spread out, like wind.

24. What type of materials absorb the most sound?
    a. soft materials like cushions, carpet, and curtains
    b. hard materials like wood, metal, and concrete
    c. clear substances like air, water, and plastic