



BUILDING BLOCKS OF PHYSICAL SCIENCE

Sound

What is sound, and how does it work? Follow the character "Sound" into a bat cave, the ear canal, and even outer space to find out!

What did you learn?

QUESTIONS

1. Sound can move through which state of matter?
 - a. Solid
 - b. Liquid
 - c. Gas
 - d. All of the above
2. Which animal uses echolocation?
 - a. Bat
 - b. Dolphin
 - c. Whale
 - d. All of the above
3. Higher-pitched sounds have a _____ frequency than low-pitched sounds.
 - a. Lower
 - b. Higher
 - c. Slower
 - d. Faster
4. Scientists have used sonar to discover which underwater feature?
 - a. Plains
 - b. Mountain chains
 - c. Volcanoes
 - d. All of the above
5. Can you describe what happens once a sound reaches your ears?
6. Can you explain why there is no sound in outer space?

TRUE OR FALSE?

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| _____ 1. Sound is a form of energy. | _____ 4. The high point of a wave is called a trough. |
| _____ 2. Sound comes from objects that vibrate. | _____ 5. Soft sounds have less energy than loud sounds. |
| _____ 3. Sound travels faster through air and liquids than it does through solids. | _____ 6. Most people can hear frequencies between 60 and 60,000 hertz. |

ANSWERS

- 1. d. All of the above.** According to page 10, we know that, "Sound can move through any state of matter—gas, solid, or liquid." So, the correct answer is D.
- 2. d. All of the above.** According to page 15, we know that, "Bats, dolphins, and whales all use echolocation." So, the correct answer is D.
- 3. b. Higher.** According to page 23, we know that, "Higher-pitched sounds have a higher frequency than low-pitched sounds." So, the correct answer is B.
- 4. d. All of the above.** According to page 29, we know that, "Scientists have used sonar to discover vast underwater plains, mountain chains, and volcanoes." So, the correct answer is D.
- 5.** According to pages 8 and 9, we know that, "Sound waves enter your ears and hit the eardrum ... Sounds cause the eardrum to vibrate. The eardrum makes tiny bones in the ear move. These bones send the sound to a curled tube deep inside the ear called the cochlea. The cochlea is full of liquid. As the sound waves travel through the liquid, they make tiny hairs bend. The bending hairs cause nerves to send signals to the brain. Your brain uses these signals to perceive sound."
- 6.** According to page 11, we know that there is no sound space because "There is no air in outer space! There are no particles to vibrate."

TRUE OR FALSE? ANSWERS

- 1. True.** According to page 4, we know that, "I'm sound. I'm a form of energy!" So, the correct answer is True.
- 2. True.** According to page 5, we know that, "Sound comes from objects that vibrate." So, the correct answer is True.
- 3. False.** According to page 10, we know that sound says, "But I travel faster through solids and liquids than I do through air." So, the correct answer is False.
- 4. False.** According to page 18, we know that, "The high point of a sound wave is called a crest, or peak." So, the correct answer is False.
- 5. True.** According to page 21, we know that, "Soft sounds have less energy than loud sounds." So, the correct answer is True.
- 6. False.** According to page 25, we know that, "Most people can hear frequencies between 20 and 20,000 hertz." So, the correct answer is False.