

Sound at Work

Read how people use sound waves to gather information and communicate.

5.5.d “sound waves have many uses and applications.”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that name a use of sound waves, and write a number beside each use to track the different ways people use them.

Waves with a Purpose

- ① Sound waves can reveal things people cannot see. During an ultrasound scan, a technician sends high-frequency sound waves into a patient's body. The waves bounce off body parts, and a computer uses the echoes to make an image. Doctors can use this image to check a developing baby or look at an organ without making a cut.
- ② On a boat, sonar helps crews learn what is below the water. A sonar device sends a sound pulse downward and measures how long its echo takes to return. Since sound travels quickly through water, the travel time can show the water's depth. Scientists also use sonar to study the shape of the seafloor without diving to it.
- ③ Sound waves also carry information through technology. A microphone changes sound waves from a person's voice into electrical signals that can be recorded or sent to another place. A speaker changes those signals back into sound waves. Emergency sirens use strong sound waves to warn nearby people about dangers, even when the danger is not visible.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How does an ultrasound scan use sound waves to make an image?

2 What does a sonar device measure, and what can that measurement show?

3 How do a microphone and a speaker work together to send a person's voice to another place?

4 Why can an emergency siren be useful when people cannot see the danger?

3 YOUR TURN _____ Your own words

Invent a tool that uses sound waves to solve a problem. Write three sentences that name the tool, explain how it uses sound waves, and tell how it helps people.

PART 1 • READ AND MARK

Underline the words that name a use of sound waves, and write a number beside each use to track the different ways people use them. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How does an ultrasound scan use sound waves to make an image?	Sound waves bounce off body parts, and a computer uses the echoes to make an image.
2	What does a sonar device measure, and what can that measurement show?	It measures how long an echo takes to return. The travel time can show the water's depth.
3	How do a microphone and a speaker work together to send a person's voice to another place?	A microphone changes voice sound waves into electrical signals that can be sent or recorded. A speaker changes the signals back into sound waves.
4	Why can an emergency siren be useful when people cannot see the danger?	Its strong sound waves warn nearby people about danger, even when the danger is not visible.

PART 3 • YOUR TURN (SAMPLE ANSWER)

A water-pipe listener could help workers find a leaking pipe underground. Escaping water makes vibrations in the pipe, creating sound waves that a sensor can detect. The tool could point workers to the leak so they do not need to dig in many places.

Accept accurate paraphrases that connect each sound-wave use to its purpose. For the open task, accept any realistic sound-wave application that clearly explains how the sound helps solve a problem.