

FUNdamental
Experiments



by Ellen Lawrence

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Sound

by Ellen Lawrence

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Let's Investigate Sound

Music, laughter, a dog barking—every day, your world is filled with sound. Sound is a type of **energy** that is made when the air **vibrates**. You can't see the air vibrating, but your ears pick up the vibrations and allow you to hear sound. Inside this book are lots of fun experiments and amazing facts about sound. So grab a notebook, and let's start exploring!



Check It Out!

If you pluck the strings of a guitar, you can see the strings move, or vibrate.

The vibration of the strings makes the air vibrate, which creates sound.

The vibrations from the guitar's strings travel in waves through the air.

They travel away from the guitar in every direction. You can't see the waves of sound, but they act just like waves in water do. Let's check it out.



- Fill a shallow bowl with water.
- Drop a small stone into the center of the bowl.
- Do you see the waves traveling through the water away from the pebble?

Sound waves in the air act just like the waves in the water.

What makes a sound loud or quiet?

Not all sounds are the same. Some are loud and some are soft. Let's investigate how different sounds are made.

You will need:

- A large rubber band
- A small plastic bowl
- A notebook and pencil

1 Stretch a rubber band around a bowl. It should be stretched across the top and under the bottom of the bowl.

► What do you think the rubber band will do if you pluck, or pull, it?

Write your **prediction** in your notebook.

2 Now test your prediction by plucking the rubber band.

► Does your prediction match what happened?



3 Try plucking the rubber band very gently.

- ▶ What do you see and hear?
- ▶ What do you think will happen if you pluck the rubber band much harder?

Write down your prediction.



4 Pluck the rubber band harder.

- ▶ Does your prediction match what happened?

Record in your notebook everything that happened.

- ▶ What created the noises you heard?
- ▶ How did the different vibrations make different sounds?
- ▶ What kind of vibrations made quiet sounds?
- ▶ What kind of vibrations made loud sounds?

(To learn more about this investigation and find the answers to the questions, see pages 20–21.)



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Learn More Online

To learn more about sound, visit

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About the Author

Ellen Lawrence lives in the United Kingdom. Her favorite books to write are those about nature and animals. In fact, the first book Ellen bought for herself, when she was six years old, was the story of a gorilla named Patty Cake that was born in New York's Central Park Zoo.



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Sound

You hear it when a dog barks or a whistle blows. You create it when you whisper or shout. What is it? Sound! You hear and make sounds every day, but now it's time to take a closer look. Inside this book are lots of fun experiments. So grab a notebook and start investigating sound, from high-pitched squeaks to low-pitched rumbles.



Color
Motion

Dirt
Sound

Light
Water

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