

# Physical Science Readers: *Pioneers of Light and Sound*

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**Science Contributor**  
Sally Ride Science

**Science Consultants**  
Michael E. Kopecky,  
Science Department Chair,  
Chino Hills High School  
Jane Weir, MPhys

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# Discovering the World of Light and Sound

The world of light and sound is rich and beautiful. All around us are layers of sights and sounds. We see and hear thousands of things each day. They give interest and joy to nearly everything we do. Can you imagine a world without light and sound? Without light, we could not see. Without sound, we would lose an important means of experiencing the world.

Not everyone has the ability to see and hear. People who are deaf or blind are still able to find their way in the world without those senses. Even when light and sound cannot be seen or heard, they still exist.

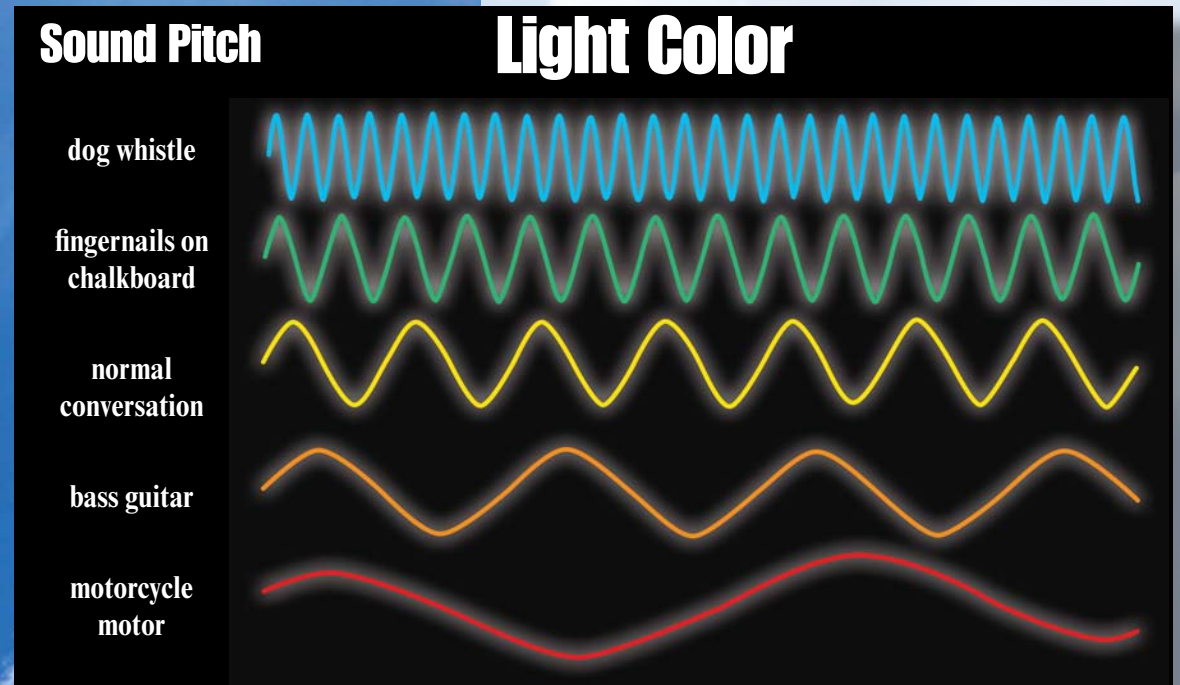
Light also serves an important purpose. Not only does it allow things to be seen, but also it gives energy to the world. Earth as we know it would not exist without the power of light.

Scientists have studied light and sound for many years. They have found that light and sound are made of waves. Sound waves are caused by the movement of **atoms**. Atoms are the tiny particles that make up everything there is in the world. Light waves are caused by the movement of electromagnetic fields. That is the same kind of energy in electricity and used in your microwave. Scientists have also found that light waves and sound waves can be managed. Several inventors have made machines that use light and sound to help people.

The scientists who have studied light and sound have led interesting lives, too. Some dedicated their lives to science. Others had many interests. Sometimes, understanding the lives of scientists helps us to understand how discoveries are made.

## Catch the Waves

Light and sound both travel in waves, much like the waves of the ocean. Light waves reflect off objects and meet the eyes. That is how we know the shape, size, and color of things. Sound waves vibrate the air around them, and ears pick up the vibrations. They send signals to the brain. The brain translates the message of the sound.



↑ Short wavelengths that are close together make the cool colors at one end of the rainbow and high-pitched sounds. Long wavelengths that are further apart make the warm colors and low-pitched sounds at the other end of the spectrum. The top of a wave is called the peak. The bottom is the trough.