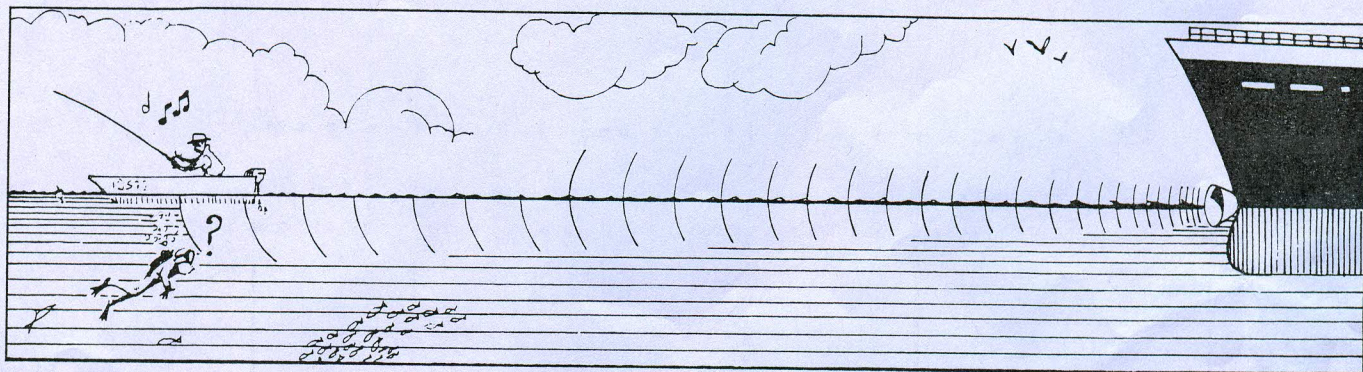


# A MEDIUM FOR SOUND WAVES

Sound travels in waves. Sound waves can travel through almost anything, but they must travel through something. That something is called a **medium**. Sound waves travel faster through denser mediums. (Water is denser than air; solids are denser than liquids.)

They cannot travel, as light waves can, through completely empty space where there is no air. Light travels much faster than sound. Therefore, you can sometimes see something before the sound of it reaches you.



## ACTIVITY

Go with a partner to a large area such as a playground when it is fairly quiet. Ask your partner to clap as soon as he or she hears your clap. Move to opposite ends of the playground. Do not look at each other. Clap your hands once loudly. Clap again when you hear your partner's clap. Keep repeating a clap as soon as each of you hears the other clap.

1. Record the time needed for 20 claps. (Use a stopwatch or a watch with a second hand.)

To compare the speed of sound with the speed of light, repeat 1, except this time watch your partner and make repeated movements of your hands instead of clapping. Make the movements small and simple, like the clapping motion. Time the 20 hand movements.

2. Is there any noticeable difference between the timing of the hearing distance and the seeing distance? Explain your results.

Hold one end of a ruler one inch from your ear and scratch on the far end of the ruler. Notice how loud the sound is. Then move the ruler one length away and scratch on the end that is closer to you. You will be making the noise at the same distance from your ear as before.

3. Compare the sound. What do you notice?

Explain this.