

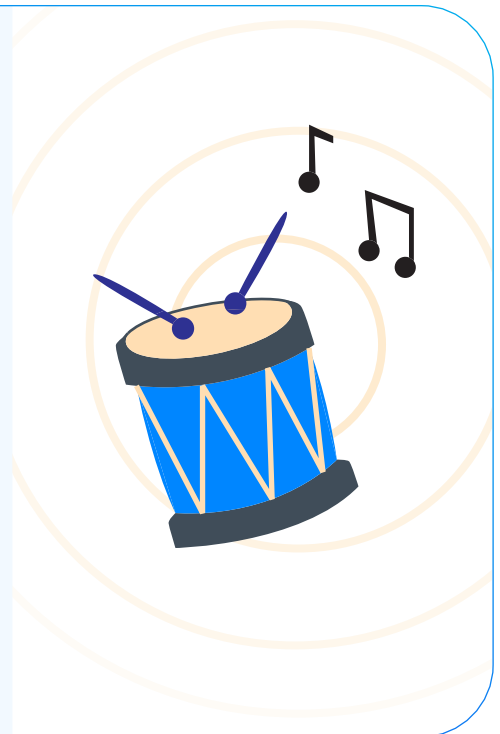
Build a Megaphone

Physics Grades K-5

This “Build a Megaphone” activity helps kids develop a better understanding of sound and communication. Children are introduced to sound waves, and how they are used in communication. They will discover what happens when materials vibrate and what objects can be used to communicate over a distance. Your children will create their own megaphones! Feel free to have them make it conical, cylindrical, or whatever shape they want.

Please explain these concepts to your kids:

- One way **communication** is possible is through our voice! Our voice makes a **sound** and **vibrates** the air around it.
- **Vibration** is created when you move something quickly back and forth.
Ex. a building during an earthquake, two cymbals being slammed together, plucking a guitar string, drums
- **Sound waves** travel through the air and vibrate air particles, which are sent to the ear and the brain.
Ex. an airplane taking off, a buzzing bee, a balloon popping



Note: You can decide how much information you want your child to know based on intelligence level, age, ability, etc. All information written on this newsletter is for grades K-5. Students may also need help with or additional information on other concepts throughout the lesson.

Conclusion

Through this “Build a Megaphone” activity, we learned a form of communication. We found out how communication is possible through our voice! Our voice makes a sound and vibrates the air around it. Sound is a wave of pressure that travels in the air. We learned how sound waves are similar to other types of waves. The amplitude is a measure of the wave’s height from a baseline of 0. Wavelength is the distance from the peak of one wave to the peak of the wave next to it. Vibration is made up of quick back and forth movements. Sound waves travel through air and vibrate air particles, which are sent to the ear and the brain. All of this happens when we talk to each other! Enjoy communicating with your own megaphone!

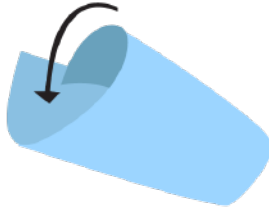
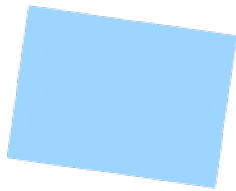
NGSS

1-PS4-4 Waves and Their Applications in Technologies for Information Transfer:

Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]

Build a Megaphone

Physics Grades K-5



Materials

- 1 piece of paper
- 1 glue stick, glue bottle, roll of tape, or stapler (Any will do!)
- Around 5 cotton balls

Steps

- 1 Get a piece of paper
- 2 Roll your paper into a cone by starting at the lower right corner and rolling it to the left side of the paper.
- 3 Use glue or tape to stick your cone together.



Talk into your megaphone.

What did you notice about the sound you made through the megaphone?

I noticed that



Now try whispering into your megaphone.

What did you notice about the sound you made through the megaphone?

I noticed that



Tape the cotton balls into the megaphone.

This means to tape them inside the cone, not outside! Now try talking and whispering into your megaphone again. What did you notice about the sound you made through the megaphone? How is it different from the sounds you made earlier?

I noticed that

Build a Megaphone cont.

Physics Grades K-5



What is Communication?

When you talk to the people around you, you are communicating. Communication is the **sending and receiving of information** through writing and speaking. What are some ways you communicate?

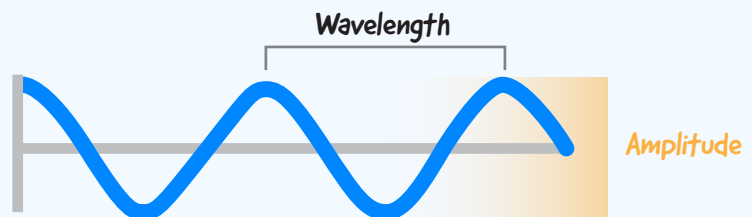
I communicate by

What is Sound?

When we communicate, **sound waves** travel through the air! **Sound waves** are caused by pressure and vibration. They transfer the energy we use to communicate. All waves, including sound waves, have similar parts.

The **amplitude** is a measure of the wave's height from a baseline.

Wavelength is the distance between wave peaks, or the highest part of the wave. It is usually measured from the peak of one wave to the peak of the wave next to it.



Based on what you know about sound waves and vibration,
how do you think we can hear a sound?

We hear a sound because



Do you think a sound wave with a large amplitude will produce a loud or quiet sound? Why?

It will produce a