

Sound Topic: What is volume?

Key Knowledge

Sound is a type of energy. Sounds are created by **vibrations**. The louder the sound, the bigger the **vibration**.

The volume of a sound is measured in decibels dB.

Have a look at these pictures and try to put them in order from the quietest to the loudest. What do you think?



Rice Krispies in a bowl



Alarm Clock



Whispering quietly



A motorbike engine



A crying baby

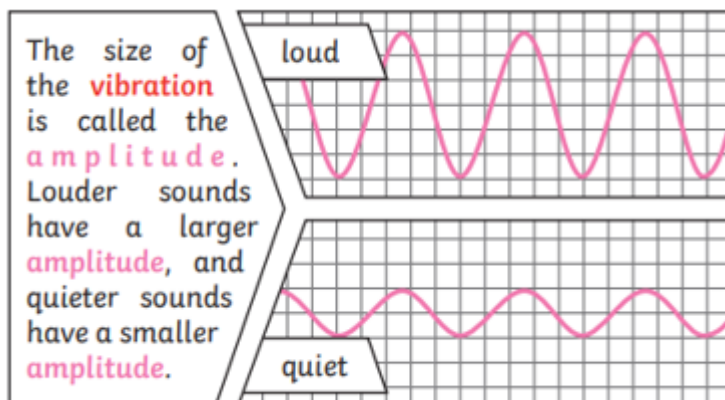


Talking normally

Now watch this clip to find out more about soundwaves and volume.

<https://www.bbc.co.uk/bitesize/topics/zgffr82/articles/zqtdpbk>

The soundwaves look different when a sound is louder compared to a quieter sound.



You can explore sound with this simple demonstration.

How to See Sound Science Experiment

Materials

- Large Bowl
- Plastic Wrap
- 1 teaspoon Uncooked Rice
- Metal Pan (Cookie Sheets or Pans are good options, but they must be metal)
- Metal Spoon



Instructions

1. Tear off a piece of plastic wrap big enough to cover the top of the bowl.
2. Secure the plastic wrap over the bowl. Make sure that the plastic wrap is very tight.
3. Pour 1 teaspoon of uncooked rice on the top of the plastic wrap.
4. Hold the metal pan in the air and position it next to the bowl
5. Take the metal spoon and bang on the metal pan like a drum and watch what happens to the rice.



Note: You could replace the rice with salt or another granular substance depending on what you have to hand at home.

Explore what happens to the rice if you bang more loudly on metal pan. Compare this to when you bang the pan quietly.

What do you notice?

There is also a video link showing the instructions for this investigation:

<httpswww.youtube.com/watch?v=37csXse35YQ>

How does the experiment work?

The rice moves and jumps around because of the sound waves that are caused when the spoon hits the pan. These sound waves travel through the air and when they reach the plastic wrap it vibrates causing the rice to move. The sound waves are also what allow us to hear the noise of the spoon hitting the pan.

Quietest to loudest answers: whisper 20dB, rice krispies 24dB, talking 60dB, alarm clock 65-80dB, motorbike engine 95dB, crying baby 110dB