

Making quiet things... LOUD!

On SCOPE's Things that... are loud episode, Julia used quiet objects to make loud noises!
Here's how you can do it at home:



Sound is a type of energy made by vibrations. When an object starts to vibrate, it bumps particles in the air and causes them to also vibrate. These vibrations pass through the air until they reach your ear, which causes your ear drum to vibrate. This sends messages to your brain to interpret the sound.



What you need:

Coat hanger
String
Scissors
Helper
Spoon

What to do:

1. Cut 2 pieces of string about 30cm long.
2. Tie the pieces of string to the bottom of the coat hanger.
3. Wrap one piece of string, a couple of times, around one finger.
4. Wrap the other piece of string, a couple of times, around one finger on your other hand.
5. Stand up so the coat hanger is hanging freely, upside down.
6. Ask your friend to tap the coat hanger with the spoon.

How loud is it?

7. Place your string-wrapped fingers into your ears.
8. Once again, ask you friend to tap the coat hanger with the spoon.

How loud is it THIS time?!

What's happening?

The first time the spoon tapped the coat hanger, the vibrations travelled through the air. The second time, the vibrations travelled along the string, through the bones of your fingers, and then to your ears. A lot of sound energy is lost as it moves through the air, so the first time, the sound was quiet, but the second time, the sound travelled straight to your ears, so it was much louder!

**What you need:**

Little music box (from music store, souvenir store)
Hollow box/table

What to do:

1. Play the little music box.

How loud is it?

2. Place the little music box on a hollow box or table and play it again.

How loud is it THIS time?!

What's happening?

If a small area vibrates, a quiet sound is produced, but if a large area vibrates a loud sound is produced. So, the music box on its own made a quiet noise, but when it was placed on a hollow box/table, the vibrations transferred to the surfaces connected to it, making a much louder sound.

**What you need:**

Slinky
Cup/can
Strong tape

What to do:

1. Stand up and bounce the slinky on the ground.

How loud is it?

2. Using strong tape, attach the slinky securely to the bottom of the cup/can.
3. Once again, bounce the slinky on the ground.

How loud is it THIS time?

4. Detach the slinky from the cup/can and attach it to a bucket.
5. Bounce the slinky on the ground.

How does the sound change?

What's happening?

Once again the vibrations from the slinky were transferred to a much larger area and so a louder sound was made! When the bucket was attached the sound became much deeper because in a bigger area, vibrations are much slower and make sounds that have a low pitch.