

## Section 3

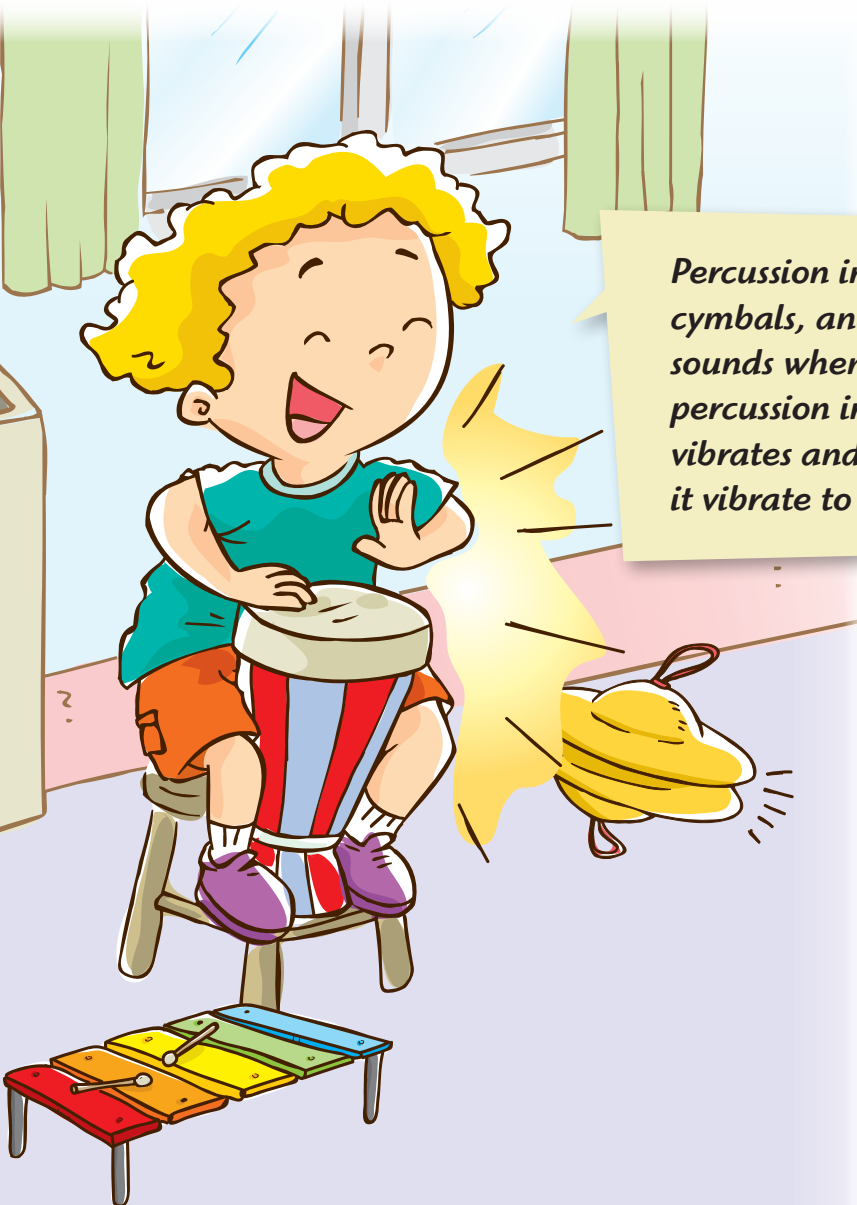
### Understanding Matter and Energy

#### EXPLORATION 2

## How does sound travel?

Learn about sound vibrations.

Sound can be produced when an object is hit. Once an object is hit, it vibrates and causes the air around it to vibrate as well. These vibrations reach our ears and we hear them as sound.



*Percussion instruments, like drums, cymbals, and xylophones, make sounds when struck. Once a percussion instrument is struck, it vibrates and makes the air around it vibrate to make music.*

We know that sound can travel through air. Do you think sound can travel through other media besides air?

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### Understanding Matter and Energy

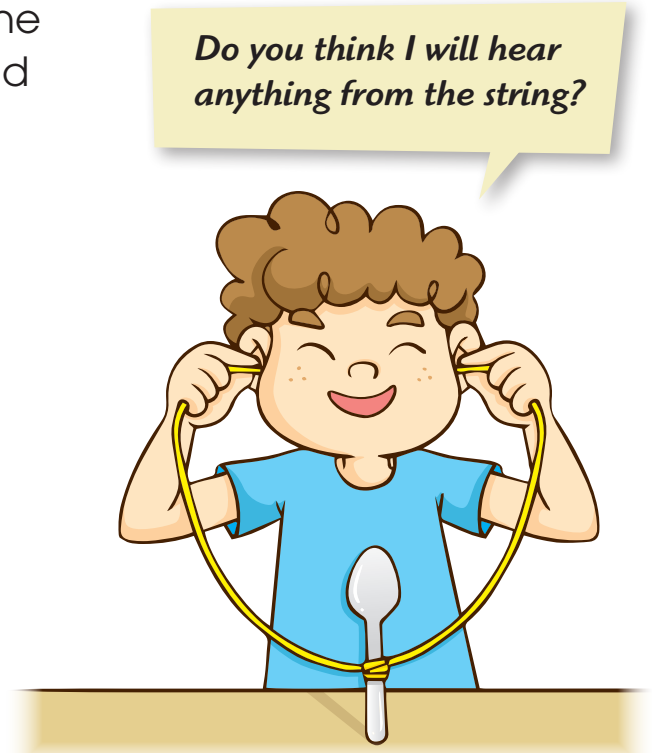
#### EXPLORATION 2

## How does sound travel?

Try this experiment to see if air is the only medium through which sound can travel.

### Materials:

- scissors 
- string 
- a metal spoon 



Tie the spoon to the middle of the string as shown. Hold the ends of the string close to your ears. Swing the spoon by moving the string. Listen carefully through the two ends of the string you are holding.

As you have experienced, sound was heard when the spoon hit the table, not only through air, but also through the string. This is because when the spoon was hit, it vibrates, and the vibrations were carried by the string straight up to your ears. In conclusion, the experiment shows you that sound can travel through different things.

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### Understanding Matter and Energy

EXPLORATION  
**2**

## How does sound travel?

Fill in the blanks about sonar. Then trace the dotted lines in red to show how sonar works.

*Sonar is similar to how echoes work.*



**SONAR** (**S**ound **N**avigation **A**nd **R**anging)

is used to detect and locate objects with \_\_\_\_\_ .  
**sound/taste**

It works by sending out \_\_\_\_\_ and then  
**sound waves/water bubbles**

\_\_\_\_\_ the ones that bounce off surrounding  
**muting/receiving**

objects. Many marine animals like whales and dolphins make

use of \_\_\_\_\_ for navigation and for sensing their  
**compasses/sonar**

surroundings.

