

PROJECT REFERENCE

UNIT 1

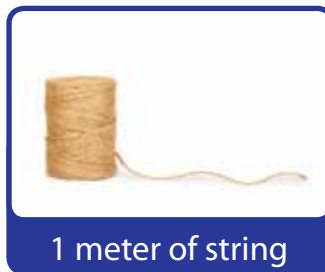
HOW SOUNDS TRANSFER THROUGH SOLIDS

You can see how sounds transfer through solids by this simple experiment.

Materials:



a big metal spoon



1 meter of string

STEP

- Tie the middle of the string around the middle of the handle of the spoon.
- Tie one end of the string to your right pointer finger and the other to your left pointer finger.
- Put your pointer fingers into your ears so the spoon hangs.
- Swing the spoon so it hits the wall.

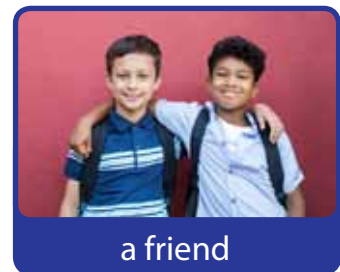
You can hear a large sound when the spoon hits the wall. This happens because sounds can transfer through solids, like a piece of string. Sounds go everywhere, but the string works as a receptor in this experiment. It transmits the sound directly to your ears so that the sound is louder and clearer.

UNIT 2

HOW SOUNDS MOVE THROUGH LIQUIDS

Can sounds move through liquids as well? Let's do an experiment.

Materials:



- STEP**
- Ask your friend to click one spoon against the other.
 - Then, ask your friend to click the spoons under the water.
 - Now, put one ear under the water and ask your friend to click the spoons under the water again.

Sound is energy. It can travel through both liquids and air. Sounds are louder when they travel under the water. The spoons sound loudest when your ear is underwater.

PROJECT REFERENCE

UNIT 5

MAKE CANDY SEDIMENTARY ROCKS

Real sedimentary rocks take time to be formed, but you can make a similar one at home!

Materials:



STEP

- Heat the chocolate in the pot until it melts. Be careful not to burn it or get water in it.
- Break the cookies into small pieces.
- Make a layer of cookies inside the mold.
- Pour the chocolate onto the cookies. Put a layer of nuts on top of the melted chocolate.
- Cover with the aluminum foil and press down.

You can clearly see the layers of cookies, chocolate, and nuts. It takes much less time than the real sedimentary rock formation, but you can infer how rocks are formed. Different materials pile on top of each other, and they are pressed down as the time goes on.

UNIT
9

MAKE A BALLOON SOUND AMPLIFIER

Let's make a balloon sound amplifier.

Material:



STEP

- a. Blow up a balloon and hold it up. Tap on it and check what the sound is like.
- b. Now, hold the balloon to your ear and tap on it again.
- c. Compare the sounds in each step.

You will notice the sound is louder when you put the balloon to your ear. If you tap the balloon while you are just holding it, the sound moves through the air in the room. The air molecules in a balloon stay very close to each other compared to the air around us. This is why it sounds louder when you put the balloon to your ear.

PROJECT REFERENCE

UNIT 10

HOW DO ECHOES WORK?

Do you want to know how echoes work? Follow these steps.

Materials:



two paper towel tubes



a pie pan

STEP











- a. Put the pie pan up on a table so it is vertical.
- b. Place the two paper towel tubes on the table at an angle with both aimed at the pie pan.
- c. Ask your friend to put his/her ear to one of the tubes. Then, speak softly into the other tube.

Did your friend hear your voice? How could they hear you even when you spoke into the other tube? Your voice traveled through the tube, hit the pie pan and bounced off, and went back through the tube to your friend's ear. Using the hard surface of a pie pan, you can create and hear echoes.

UNIT
11

HOW TO SEPARATE MIXTURES

There are more ways to separate mixtures.

Mixture	Way
 <p>fresh coffee beans</p>	 <p>handpicking</p>
<p>If the size of grains is big enough to pick, handpicking is one of the easiest ways to separate mixtures.</p>	
 <p>muddy water</p>	 <p>a cup and gravity</p>
<p>When you put muddy water in a cup, mud (sand) settles at the bottom because it is heavier.</p>	
 <p>seawater</p>	 <p>water evaporation in the sun</p>
<p>After water evaporates in the sun, only solids remain. We can get salt through evaporation.</p>	
 <p>salt and ground pepper</p>	 <p>a plastic spoon and a cloth</p>
<p>Ground pepper is smaller and lighter than salt. When you rub the spoon on a cloth, it creates static. Pepper easily sticks to the spoon because it is small and light.</p>	
 <p>grains</p>	 <p>a winnow</p>
<p>Farmers separate grains from husk with a winnow. Since the husk is lighter than the grains, it blows away and only the grains remain while winnowing.</p>	