

# Sound

## Exercise 84:

### Solution 1(a):

Sound from a rotating fan, sound of birds chirping, noise of the horn of trucks and cars, sounds of the pressure cooker, sound of cleaning utensils, sound of water dropping from the tap, etc. are some of the sounds which can be heard in our surroundings.

### Solution 1(b):

Some ways to produce different sounds are:

1. By rubbing two things, e.g. on rubbing our finger on an inflated balloon will produce sound.
2. By colliding two things, e.g. on colliding two glasses with each other produces sound.
3. By vibration, e.g. when we blow air in a flute sound is produced.

## Exercise 86:

### Solution 1(a):

When air is blown into the V shaped part, sound is produced.

### Solution 1(b):

The V shaped part starts vibrating as air is sucked from the other side of the straw. This happens because vibrations are produced in the straw.

### Solution 1(c):

When air is removed from an inflated balloon with a pinch of the fingers, the rubber near the mouth of the balloon vibrates.

## Exercise 87:




### Solution 1(a):




**Guitar:** When the strings of a guitar are plucked, the strings vibrate to produce sound.

**Tablas:** When the stretched leather diaphragm of a table is struck by the palm, sound is produced due to vibrations.

**Harmonium:** When the air trapped in the harmonium box vibrates, sound is produced.

**Solution 1(b):**

| Name of musical instrument   | Reason of producing sound |              |            |
|--|---------------------------|--------------|------------|
|  | By colliding              | By vibrating | By rubbing |
| <br>Violin        |                           | ✓            |            |
| <br>Ravan-hattho |                           |              | ✓          |
| <br>Maracas     | ✓                         |              |            |

|  |   |   |  |
|--|---|---|--|
|  <p>Flute</p>   |   | ✓ |  |
|  <p>Kartal</p>  | ✓ |   |  |
|  <p>Guitar</p> |   | ✓ |  |

### Exercise 88:

#### Solution 1(a):

1. When both the cups are held near the ears, low but clear sound is heard.
2. On removing the cup from the ear, sound is not heard.
3. Vibrations are experienced when the string is slightly touched when the other person is speaking.
4. Sound is not heard if the string of the telephone is kept loose.
5. When your friend speaks sound waves travel through the stretched string to the cups and sound is heard.

### Exercise 89:

#### Solution 1(a):

Yes, the tapping sound made by the pencil can be heard

**Solution 1(b):**

Yes, sound can be when two stones are collided in a bucket full on water.

**Solution 1(c):**

When two stones are collided in a bucket filled with water, the sound heard passes through the medium of water and air.

**Exercise 90:****Solution 1(a):**

Surrounding sounds are heard through the medium of air.

**Solution 1(b):**

Among solid, liquid and gases, sound is clearly heard in the solid medium.

**Solution 1(c):**

After a certain height there is no medium between the Earth and the Sun as well between the Earth and the Moon. This means that there is vacuum between them. But, sound requires a medium for propagation. Hence, it cannot travel through the vacuum and so the sound of the blasts on the surface of the Sun and the Moon cannot reach the Earth and we cannot hear the blast.

**Solution 1(d):**

When we speak loudly in classrooms, auditorium or the prayer hall of our school, we can hear our words again.

**Solution 1(e):**

When we speak loudly in front of a mountain or an echo point at any hill station we hear an echo.

**Exercise 91:****Solution 1(a):**

When all the students read the words written at the same time we cannot hear the different words clearly. This is because all the sounds get mixed together.

**Exercise 92:****Solution 1(a):**

Railway stations, bus stands, aerodromes, big factories, printing presses, construction sites and vegetable markets are some places where we find noise pollution.

### Solution 1(b):

To protect ourselves from noise, we can follow the following steps:

1. Soundproof rooms should be constructed especially in places like factories where big machines are run.
2. Television, radio, loudspeakers should be played at a low volume.
3. The engines and silencers of vehicles should be kept in proper condition so that noise is not produced.
4. Auditorium and cinema halls should be equipped with sound absorbing materials so that the echo produced does not cross the room and produce noise outside.
5. Plants and trees help in reducing noise by absorbing sound and also help in keeping the air clean. So trees should be planted along road sides and residential areas.
6. More and more trees should be planted in surrounding areas of aerodromes to reduce the noise level.

### Solution 2:

| Sounds I like                      | Sounds I don't like                              |
|------------------------------------|--|
| Music                              | Sound of the car alarm or horn                   |
| Chirping of birds                  | Sounds in vegetable market                       |
| Sound of the sea waves             | Sounds of big machines                           |
| Singing of a cuckoo                | Sound heard when a train arrives on the platform |
| Rustling of leaves when winds blow | Sound of the glass shattering                    |

### Solution 3:

The following steps can be followed to reduce sound in the vegetable market:

1. All the vegetables vendors should put a price list of all the vegetables so that there is no need for the people to ask for the price.
2. People should not crowd the market place unnecessarily as this occupies space and increases the noise level.
3. The vegetables vendors should be fined for shouting unnecessarily in the market.
4. Keep rubber pads on the ground below the beam balance to reduce the sound while handling. If possible, a digital balance should be used.
5. There should be some space between the vendors for the customers to stand so that there will be fewer crowds and no shouting.