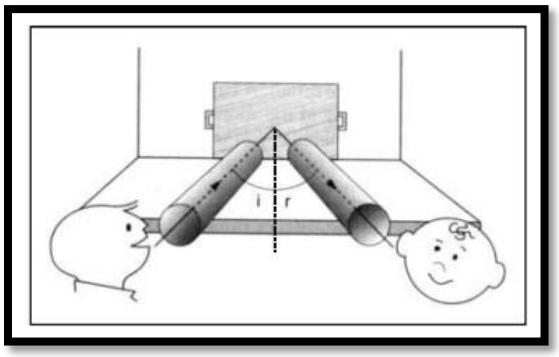
Sound

Reflection of Sound

Reflection of sound

When a sound wave travelling in a medium bounce back to the same medium after striking the second medium, reflection of sound wave is said to take place. The reflection of sound wave is similar to the bouncing back of a rubber ball after striking a wall or the surface of a floor.



Just like light, sound is reflected by the solid and liquid surfaces. The reflection of sound obeys the laws of reflection. The laws of reflection of sound are as follows:

(i) Incident angle = Reflected angle and

(ii), The incident direction of sound, reflected direction of sound and the normal to the point of incidence all lie in the same plane

Uses of multiple reflection of sound

1. Megaphone:

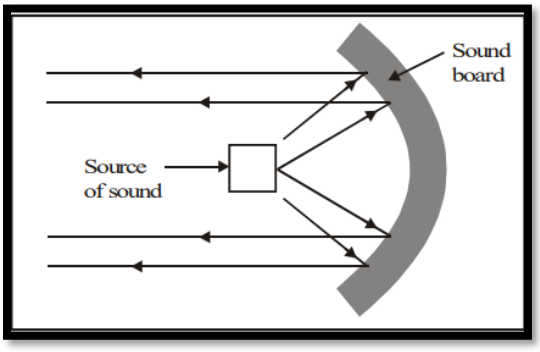
Megaphone is a device used to address public meetings. It is a horn-shaped. When we speak through megaphone, sound waves are reflected by the megaphone. These reflected sound waves are directed towards the people (or audience) without much spreading.

2. Hearing Aid:

Hearing aid is used by a person who is hard of hearing. The sound waves falling on hearing aid are concentrated into a narrow beam of sound waves by reflection. This narrow beam of sound waves is made to fall on the diaphragm of the ear. Thus, diaphragm of the ear vibrates with large amplitude. Hence, the hearing power of the person is improved.

3. Sound boards:

Sound boards are curved surfaces (concave) which are used in a big hall to direct the sound waves towards the people sitting in a hall. The speaker is (i.e. source of sound) placed at the focus of the sound board as shown in figure. Sound waves from the speaker are reflected by die sound board and these reflected waves are directed towards the people (or audience)



4. Stethoscope:

Stethoscope is a device used by doctors to listen the sound produced by heart and lungs. The sound produced by heart beat and lungs of a patient reaches the ears of a doctor due to multiple reflection of sound.

5. Ceilings of concert halls are curved:

The ceilings of concert halls and auditoriums are made curved. This is done so that the sound reaches all the parts of the hall after reflecting from the ceiling as shown in figure. Moreover, these ceilings are made up of sound absorbing materials to reduce the reverberation.