Sound Needs a Medium for Propagation

Propagation of sound:

Sound needs a medium for propagation. It cannot travel through a vacuum because in the empty space there are no atoms or particles to vibrate.

Example:

Astronauts on the moon are not able to communicate with each other without using any special device. Why?

Solution:

The moon is in space and most of the space is a vacuum. On the moon, there is no air exists, only a very thin layer of gases is present in the atmosphere. The particles of these gases are very far apart from each other and don't interact with each other.

Therefore, the sound does not propagate as sound needs a medium having particles to vibrate and the moon does not have that.

When a body vibrates in a medium. The particles around the vibrating body start to vibrate and travel in all directions.