

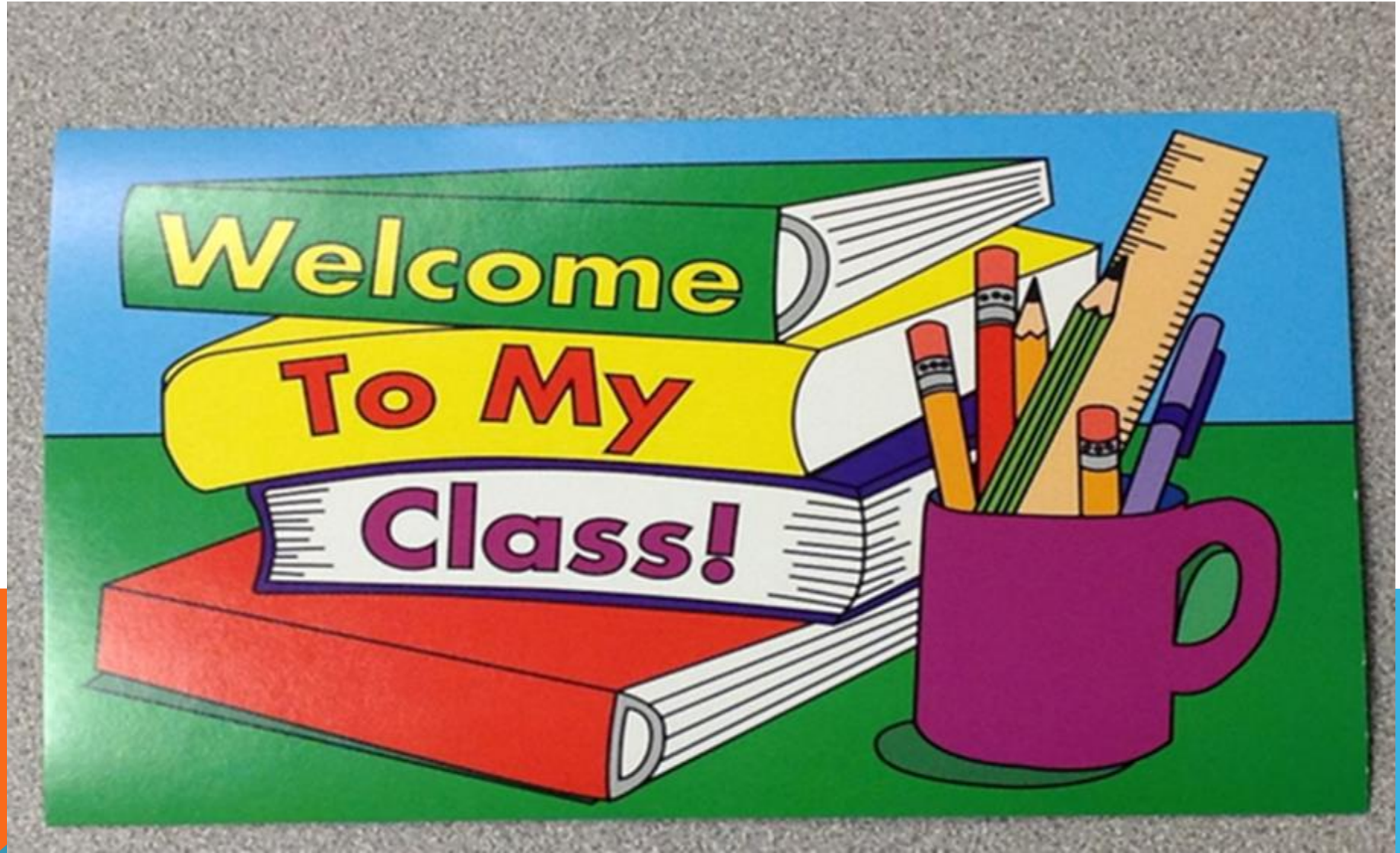


Pakistan School
Kingdom of Bahrain



CLASS : 10

SUBJECT : PHYSICS



ENGAGING STARTER

Which thing is produced in the given pictures.



Which thing is reaching to the ear?

TOPIC

Sound and its characteristics



OBJECTIVE

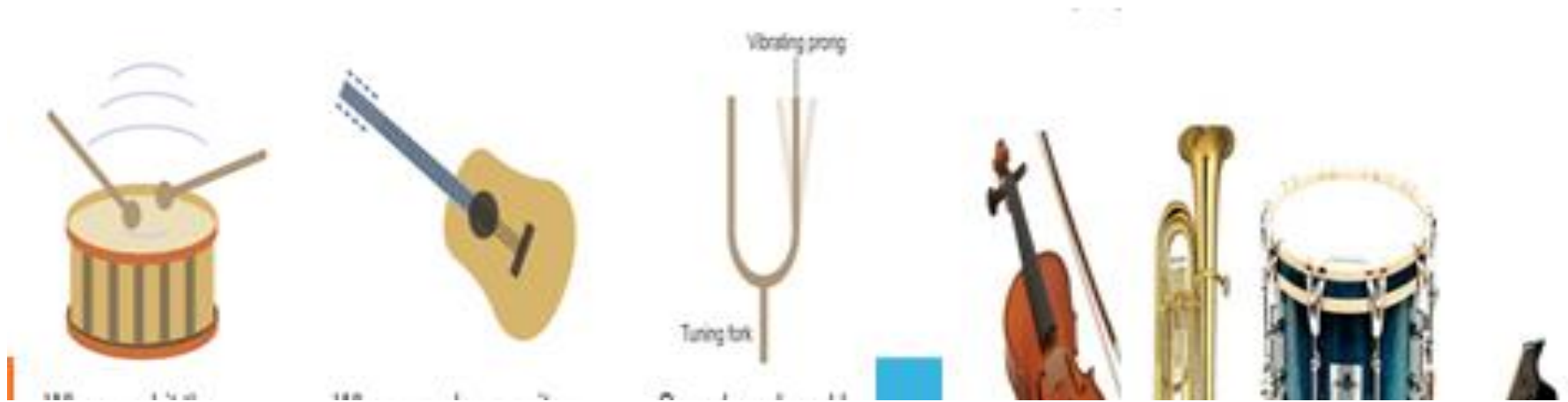
**At the end of this lesson
students will be able to**

:

**Describe the
characteristics of sound
waves.**

SOUND WAVES

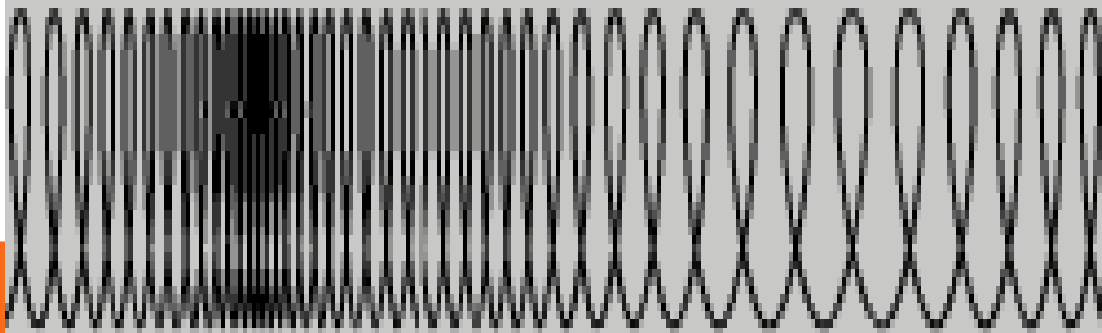
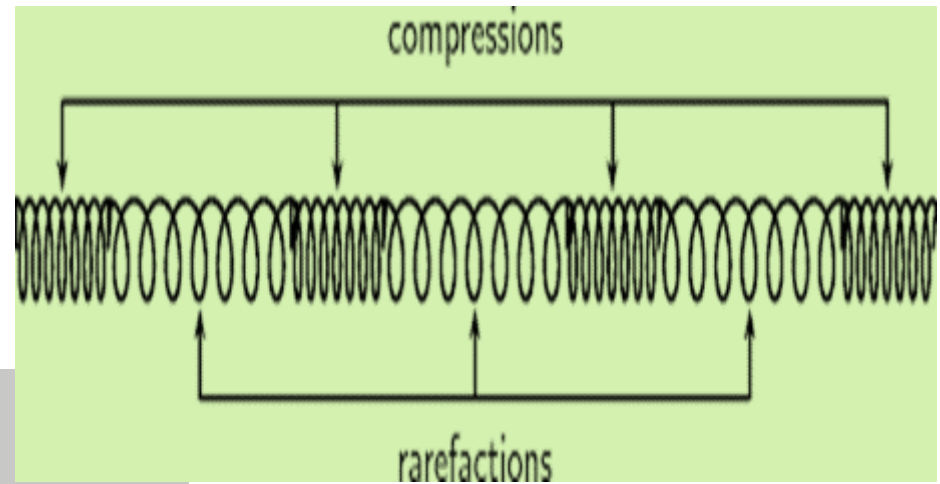
An object makes a sound wave when it vibrates.



Sound needs a material to travel through and sound waves are made by particles moving backward and forwards in a wave motion. They carry energy from one place to another.

LONGITUDINAL NATURE OF SOUND WAVES

Sound waves



WORKING OF TUNING FORK

Vibrations produced by tuning fork



CHARACTERISTICS OF SOUND WAVES

There are some characteristics of sound waves given below:

1.Loudness

2. Pitch

3.Quality

LOUDNESS

Definition :

We can distinguish between loud and faint sound.

Example :.....

FACTORS OF LOUDNESS

There are some factors on which loudness of sound depends.

1. Area of vibrating body
2. Amplitude of vibrating body
3. Distance from vibrating body

AREA OF VIBRATING BODY

Greater the area of vibrating body louder will be the sound .

Examples

Small drum will produce sound.

Large drum will produce Sound.



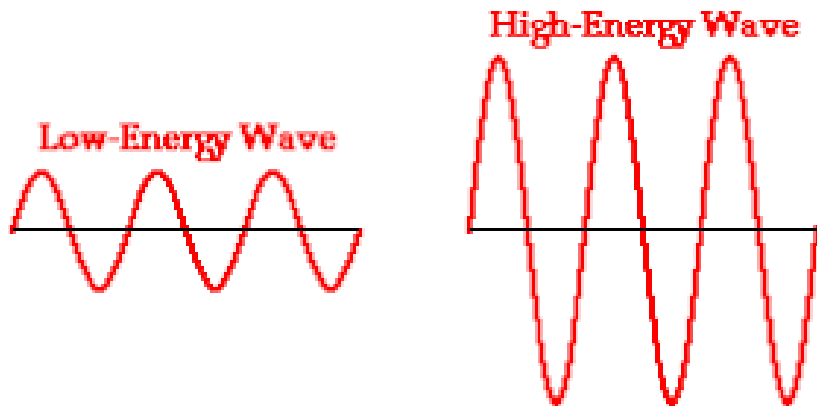
AMPLITUDE OF VIBRATING BODY

Loudness of sound is directly proportional to amplitude of vibrating body.

For example

Sound produced by sitar will be loud if its string is plucked violently.

Beating drum forcefully produce Sound.



The amplitude of a wave is related to the energy which it transports.

DISTANCE FROM VIBRATING BODY

**Greater is the distance from vibrating body
low will be the sound.**

**Reason: it is caused by the decrease in
amplitude due to increase in distance.**

Condition of ears of listener:

Sensitive ears can detect loud sound easily.

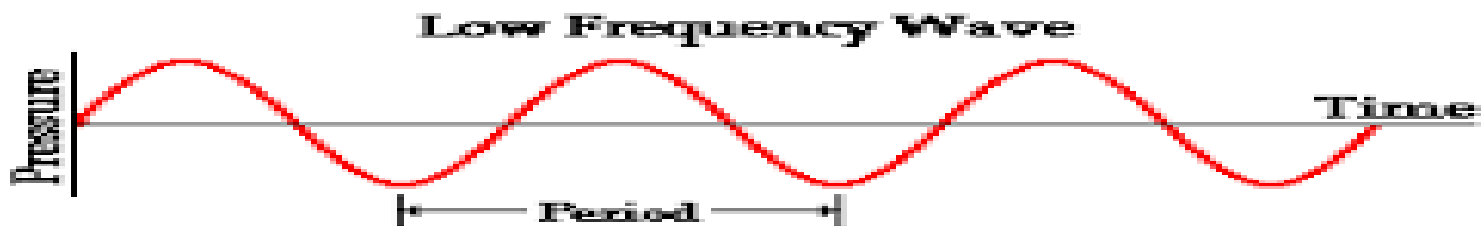
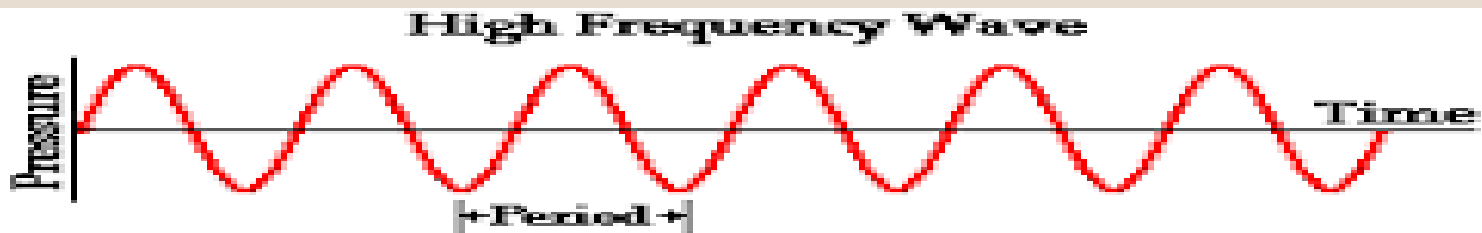
Defective ear

PITCH

Pitch is the characteristic of sound by which we can distinguish between shrill and grave sound .

Factor : It depends on frequency of sound wave .
Higher the frequency higher will be the pitch .

Example : women have high pitched sound as compared to men.

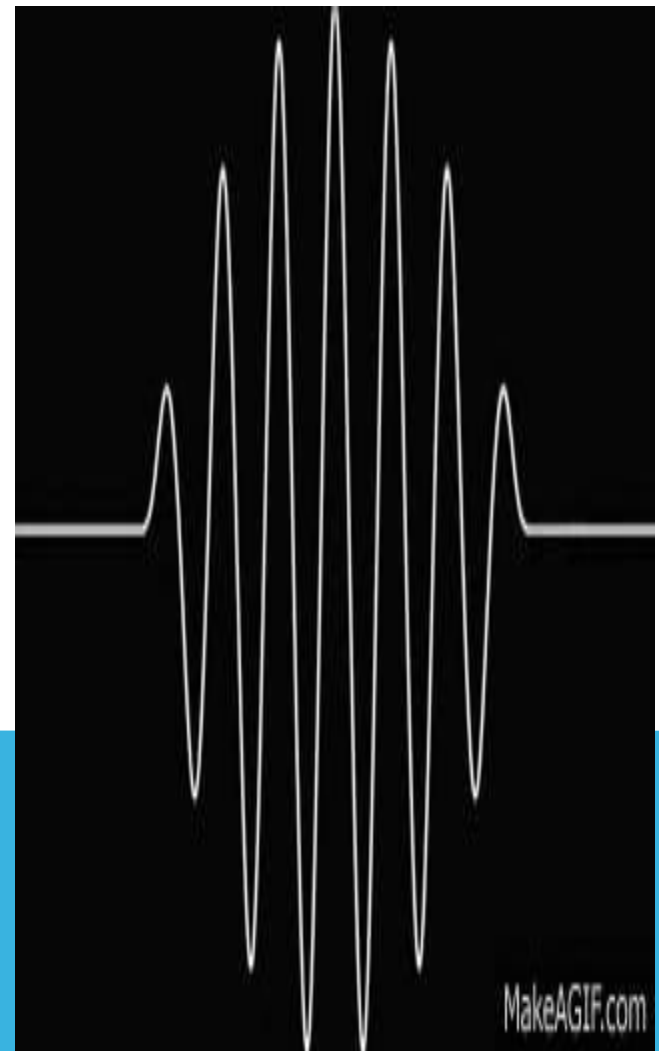


QUALITY

The characteristic of sound by which we can distinguish between two sounds of same loudness and pitch is called quality .

For example: In a song different instruments are played at the same time still we can identify the instrument separately which are played in song.

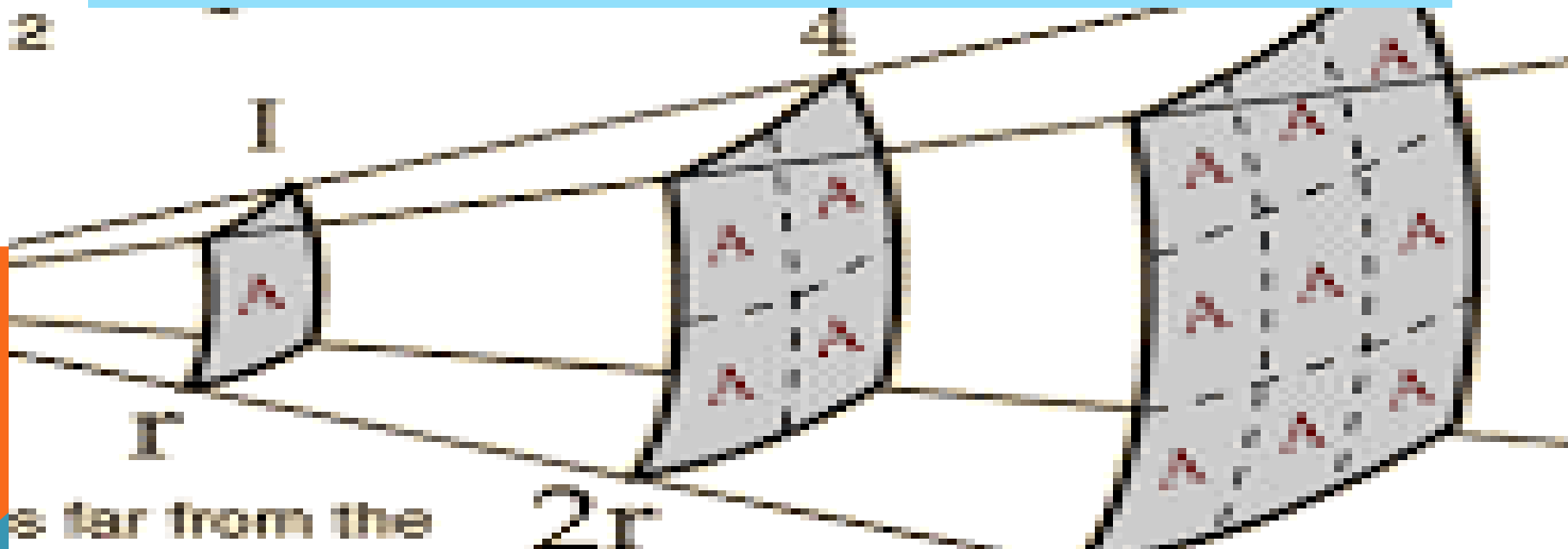
EXAMPLES




INTENSITY OF SOUND

Sound energy passing per second through a unit area held perpendicular to the direction of propagation of sound waves is called intensity of sound .

Unit : watt per square meter.



PLENARY

- Sound is produced by
 - Give some examples which produce sound.
 - There are characteristics of sound waves.
 - Define loudness of sound with example.
 - Pitch depends on
 - Quality means
- 



Allah

Hafiz