

Chapter 15 Day 3

Section 1

SPI 0707.11.6 Differentiate between transverse and longitudinal waves in terms of how they are produced and transmitted.

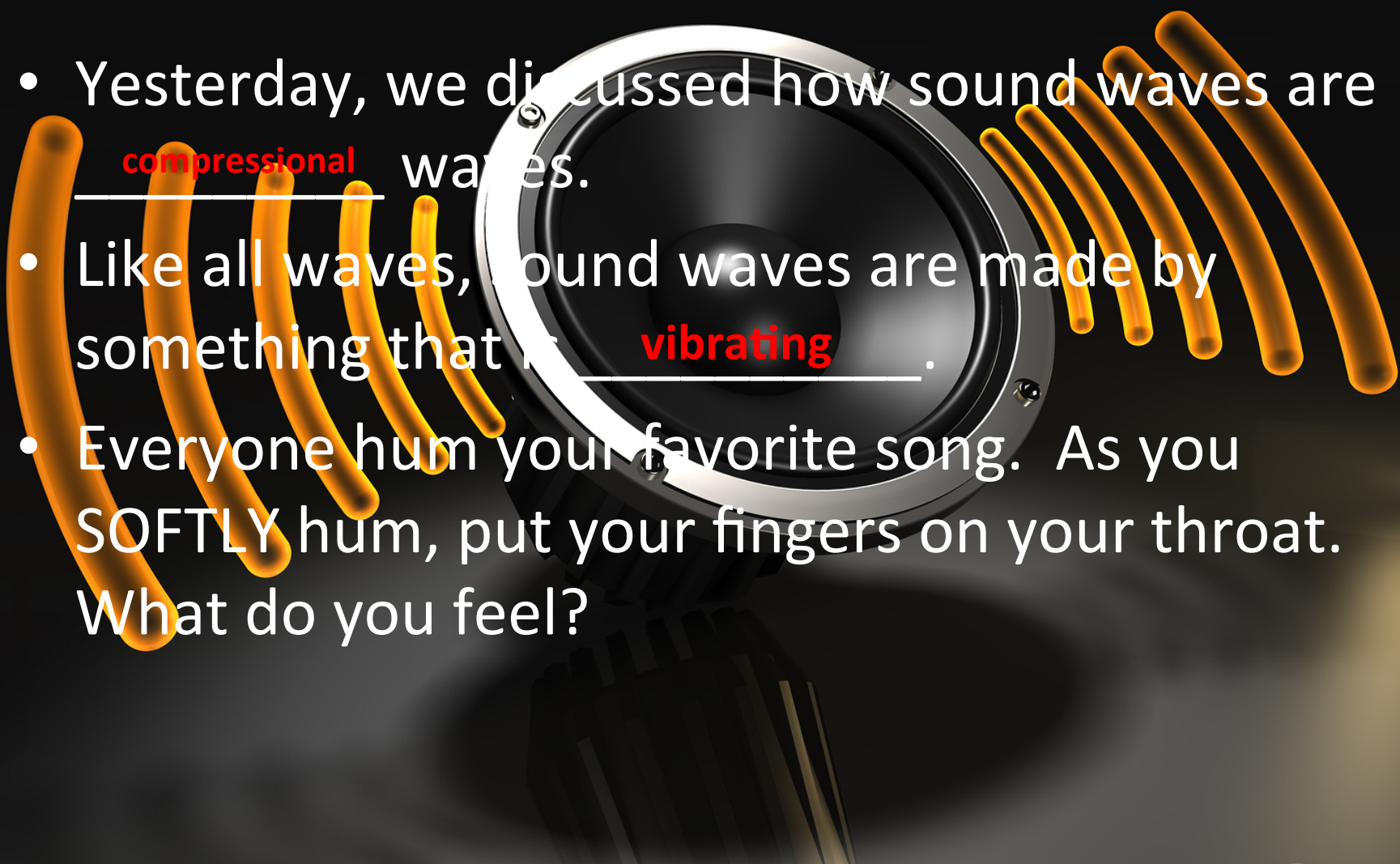
What You Will Learn

- What sound waves are
- How they are transmitted
- What an electromagnetic wave is

What Mastery Looks Like

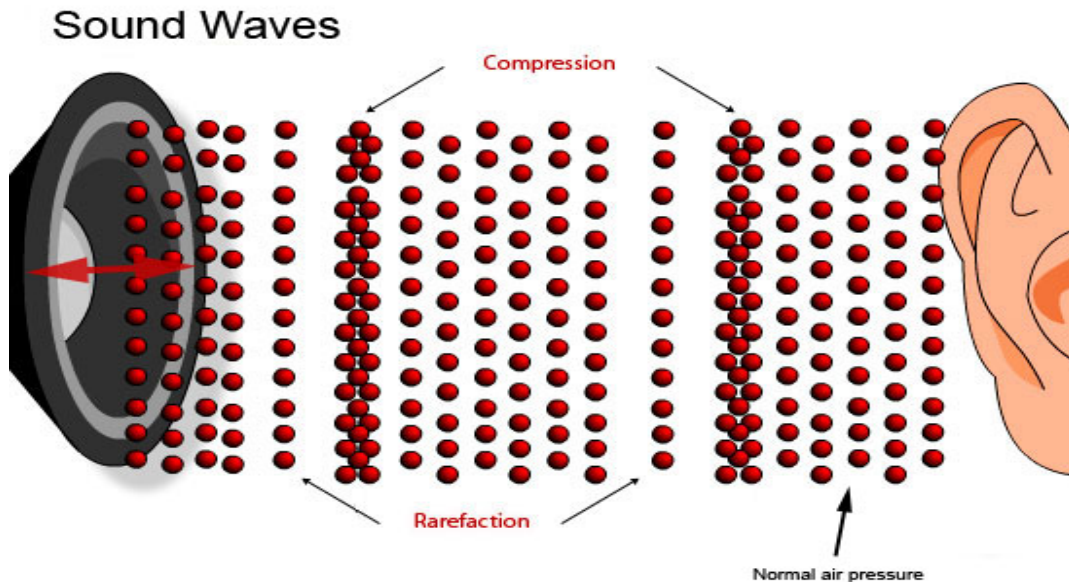
- You will be able to compare and contrast mechanical and electromagnetic waves.
- You will be able to give examples of electromagnetic waves.
- You will be able to explain how sound waves are produced.

Sound Waves

- Yesterday, we discussed how sound waves are compressional waves.
 - Like all waves, sound waves are made by something that is vibrating.
 - Everyone hum your favorite song. As you SOFTLY hum, put your fingers on your throat. What do you feel?
- 
- A central image of a black speaker with a silver rim. From the speaker, several thick, orange, curved lines radiate outwards, representing sound waves. The background is dark and slightly blurred.

Making Sound Waves

- Something that vibrates in the air produces a sound wave.
- In a speaker, the electric current causes the speaker cone to vibrate back and forth. As the speaker cone moves outward, air molecules next to it are pushed closer together.



Read the last paragraph and look at the picture on p. 457.

With your shoulder partner, discuss how compressions and rarefactions are different.

Sound Waves

- <http://www.brainpop.com/science/energy/sound/>
- Use your white boards to take the quiz after the video is over.

Electromagnetic Waves

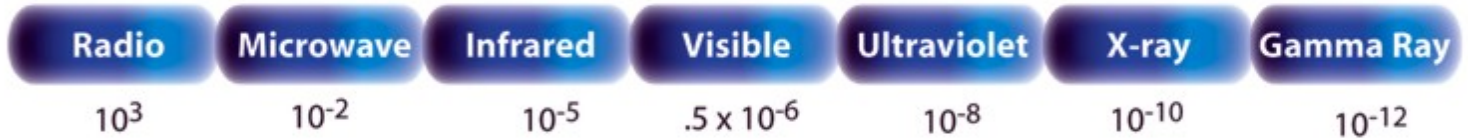
- If no matter is needed for a wave to travel, it's an electromagnetic wave.
- If electromagnetic waves don't need matter, can they still travel through matter if necessary?
- Yes, these waves can travel in matter or in space.
- Radio waves from TV and radio stations travel through air, but can be reflected from a satellite in space (where there is no matter).
 - Examples of electromagnetic waves: radio waves, infrared waves, visible light waves, ultraviolet waves, x rays, and gamma rays.

THE ELECTROMAGNETIC SPECTRUM

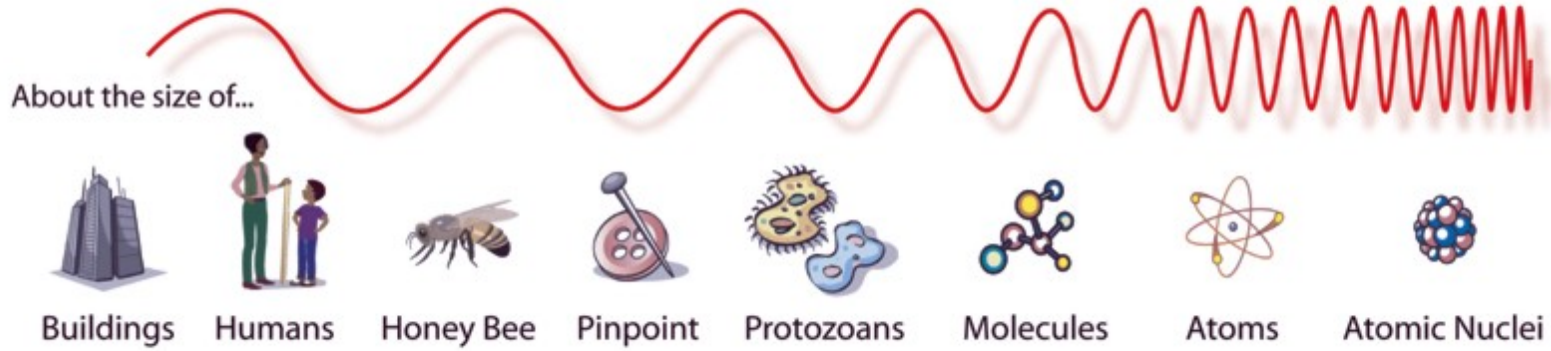
Penetrates
Earth
Atmosphere?



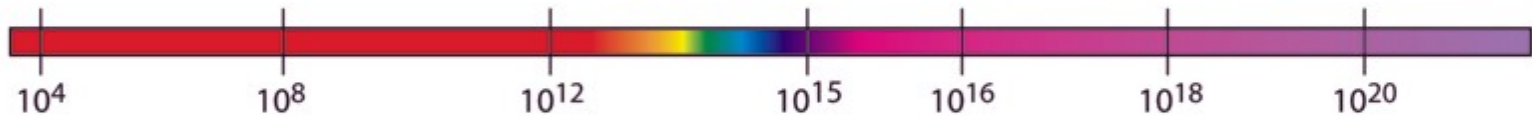
Wavelength
(meters)



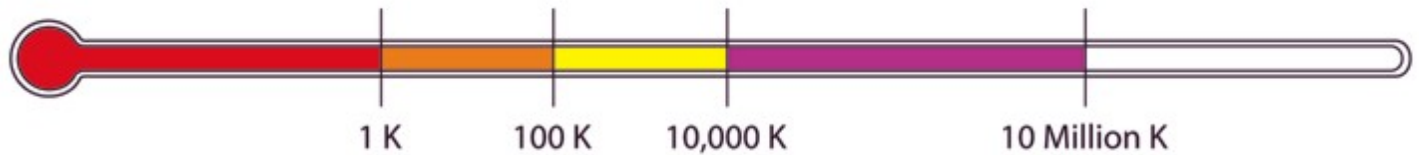
About the size of...



Frequency
(Hz)



Temperature
of bodies emitting
the wavelength
(K)



[VIDEO](#)

Radiant Energy from the Sun



- The Sun emits electromagnetic waves that travel through space and reach Earth.
- Electromagnetic waves carry energy called radiant energy.
- Most of the radiant energy that reaches Earth is carried by infrared and visible light waves.
 - Infrared waves = make you feel warm
 - Visible Light waves = help you see

Exit Ticket

- Complete 1-6 of the Section 1 Review on p. 458.