Guided Practice

Name: KEY Date: _____

Vocabulary Chart

Complete the chart below.

Vocabulary Word	Definition	How am I going to remember it?
Wave	A rhythmic disturbance created by an oscillating source.	Similar to waves at the beach. (Answers will vary.)
Sound wave	**A pattern of disturbance caused by the movement of energy traveling through a medium**	You can feel the sound vibrating (traveling) on a window if the music is loud. (Answers will vary.)
Medium	**The material through which the wave travels.**	Sound energy can't travel in outer space if there isn't air, water, or a solid. (Answers will vary.)
Transmitted	**To send or forward**	Radio stations transmit sound from the station to your car. (Answers will vary.)
Absorbed	The act of taking in or soaking up energy	In a soundproof room the walls are thick and made of materials that absorb the sound so the sound loses energy before it can make it through the medium. (Answers will vary.)

Guided Practice

KEY

Have Wave; Will Travel!
Who is Correct?

One hot summer day, your Mom tells you and your friends that you can have ice cream when the train comes through town. You and your friends decide to have a contest to see who will hear the train first. You decide to jump in the swimming pool and listen underwater because you think water will help you feel and hear the sound vibration quickest. Mary sits on a chair because she thinks that air is thinner and that the sound will travel faster through a thinner medium. Johnny puts his ear to the ground because he remembered from an old cowboys-and-Indians movie that Indians listened through the ground to hear the cowboys coming from a distance. Who will hear the train first? Explain why that person is correct.

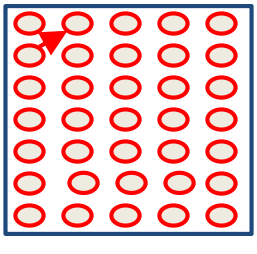
Johnny was correct. In a solid, the atom's particles are closer together so the sound will travel faster from atom to atom. Therefore, Johnny will hear the sound first.

Underwater, you would hear the sound before Mary because the sound would travel faster through the particles in the ground and the water in the pool than it would through air molecules.

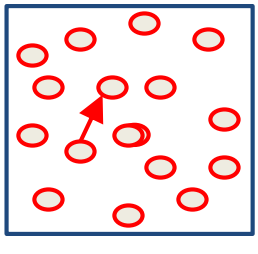
It might be good to mention that when it is a cold day, air travels faster because molecules are closer together than when the temperature is hot.

Hint:

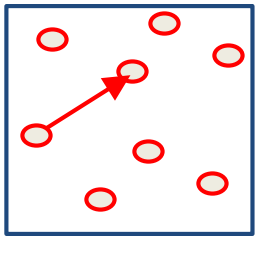
- Draw a molecular particle drawing of the three states of matter.
- Remember, sound waves travel by vibration from particle to particle.
- Draw an arrow from one particle to the other. The size of the arrow represents the speed that the sound wave will travel!



Solid



Liquid



Gas

Guided Practice

Check Understanding, KEY

Directions: Fill in the blanks using the word bank below.

Word Bank

Reflected	Darker	Infrared	Electromagnetic	Ultraviolet
Wavelength	Waves	Temperature	Darker	Absorbed

Electromagnetic **WAVES** affect materials in different ways. When **ELECTROMAGNETIC** waves are **ABSORBED** they are taken in by a material. Alternatively, when the waves are **REFLECTED** they are scattered back in multiple directions. Shiny objects tend to scatter the electromagnetic waves, while **DARKER** colored objects tend to absorb them. When waves encounter materials, a change in **TEMPERATURE** can occur. The intensity, amount, and **WAVELENGTH** of the electromagnetic wave determines how much the **TEMPERATURE** of the material will increase. Not all waves in the spectrum cause a temperature change. **INFRARED** waves that are used with satellite imaging and television remotes will not cause a temperature change, while **ULTRAVIOLET** waves from the sun will.

Directions: Answer the questions below using complete sentences.

1. Explain why a swimming pool deck can become too warm to stand on in the summertime. Sample Student Answer: The pool deck absorbs infrared radiation from the Sun, causing an increase in temperature.
2. A water bottle is sitting in front of a poster. The letters seen through the water bottle appear larger. Explain why this is true. Sample Student Answer: The water scatters the electromagnetic waves and distorts the letters.