**Waves Unit Pre/Post Test**

1. True or False: Waves carry energy.

a) True

b) False

1. Which of the following states of matter do waves travel through?

a) Solid

b) Liquid

c) Gas

d) All of the above

1. Which of the following is true about a **longitudinal** **wave**?

a) The wave moves across a medium in a direction parallel to the direction the wave travels.

b) Crests and troughs are characteristics of this type of wave.

c) The wave moves across a medium in a direction perpendicular to the direction the wave travels.

d) Swinging a rope can be used to model this type of wave.

1. Which of the following is true about a **transverse wave**?

a) The wave moves across a medium in a direction parallel to the direction the wave travels.

b) It carries more energy than a longitudinal wave.

c) The wave moves across a medium in a direction perpendicular to the direction the wave travels.

d) Sound waves are a type of transverse wave.

1. What is **amplitude**?

a) The highest part of a transverse wave.

b) The lowest part of a transverse wave.

c) The distance between one crest and the next in a transverse wave.

d) The height from the resting position to the crest of the transverse wave.

1. How do you find the **wavelength** of a transverse wave?

a) Find the distance between one crest and the next trough of the wave.

b) Find the distance between one trough and the next crest of the wave.

c) Find the distance between one trough and the next trough of the wave.

d) Find the amplitude.

1. What determines the **pitch** of sound?

a) The speed of the vibrations causing sound.

b) The amount of energy used to make the object vibrate.

c) How loudly someone speaks.

d) The wavelength of sound waves.

1. Which of the following is **NOT** true about how sound waves travel?

a) Sound waves can travel through string.

b) Sound waves require a medium to travel through.

c) Sound waves cause vibrations.

d) Sound waves travel in transverse waves.

1. A scientist is recording the temperature of a liquid every 30 seconds as he heats the liquid on a hot plate. In this experiment, which of the following is the **dependent variable**?

a) The temperature of the liquid.

b) The amount of time that passes.

c) The hot plate.

d) 30 seconds.

1. What type of communication device was the Morse Code invented for?

a) The telephone

b) The cell phone

c) The telegraph

d) The Internet

1. Which of the following is true about **light**?

a) Light can travel through some solids.

b) Light can travel through a vacuum.

c) Light travels as a wave.

d) All of the above.

1. What is a **luminous object**?

a) An object that reflects light.

b) An object that directly emits light.

c) An object that blocks light.

d) An object that absorbs light.

1. Which of the objects below is **translucent**?

a) Glass

b) Wood

c) Water

d) Tissue paper

1. Which of the following statements is **NOT** true about shadows?

a) Translucent objects can create shadows.

b) Opaque objects can create shadows.

c) The shorter the distance between an object and a light source, the smaller the object’s shadow is.

d) A rectangular prism can create a square shadow.

1. Which of the following is true about the **angle of incidence**?

a) It is equal to the angle of reflection.

b) It is the angle at which a ray of light leaves a mirror.

c) It is smaller than the angle of reflection.

d) It changes depending on how bright the light is.

1. How does a periscope let you see behind obstacles?

a) It reflects light off of multiple mirrors.

b) It bends light.

c) It captures an image of the object and then displays it on a screen.

d) It doesn’t actually let you see behind obstacles.

1. Which of the following is responsible for **refraction**?

a) Some light waves are reflected back into the atmosphere.

b) Some light waves get absorbed by the environment.

c) Light always bends away from water.

d) Light travels through different mediums at different speeds.

1. Why do our eyes see the color red when we look at a tomato?

a) Tomatoes emit red light.

b) Tomatoes absorb red light and reflect green and blue light.

c) Tomatoes reflect red light and absorb green and blue light.

d) Tomatoes reflect all colors of light, but our eyes only absorb red light.

1. What color of light do you get by combining red, blue, and green light?

a) White light

b) Black light

c) Brown light

d) Yellow light

1. Which of the following is true about a **concave lens**?

a) It is thicker at the center and thinner at the edges.

b) It causes rays of light to converge when they pass through.

c) It causes rays of light to spread out when they pass through.

d) It reflects light.

**For post-test only:**

What was your favorite activity in this unit?

What would you change about the sound and light unit, if anything?

What was the most important thing you learned?