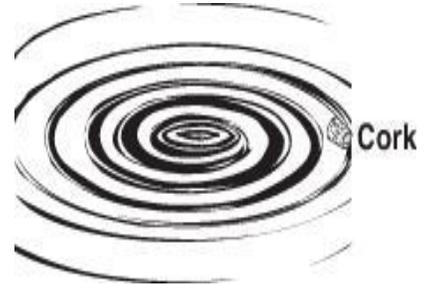


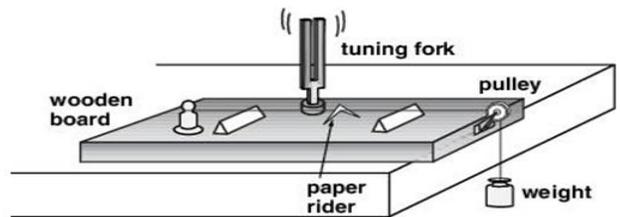
# Light vs Sound

- When a sound wave travels through a medium, what is being transmitted in the direction of the movement of the wave?
  - Density
  - Energy
  - Mass
  - Velocity
- Which type of wave can transmit energy in a vacuum?
  - Light
  - Water
  - Sound
  - Seismic

- Analyze the image to the right of the cork in water. A disturbance in the water caused waves to radiate 360° from the disturbance. If you witnessed this event what interaction between the cork and the wave would be evidence that waves only transfer ENERGY and NOT matter?
  - Reduction of the velocity (slows down) of the wave when it strikes the cork.
  - Vibration of the cork about its mean position (cork stays in same location) as the waves pass by.
  - Movement of the cork as it travels in the same direction as the waves.
  - Movement of the water molecules from the place of the disturbance to the cork.



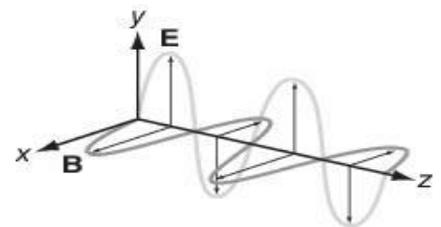
- Analyze the diagram with the tuning fork. The tuning fork is NOT attached to the wire that the paper rider, pulley, and weight are. When the tuning fork was struck a sound was heard and the paper rider fell off the wire. What caused the paper rider to fly off the wire?
  - The mass of the weight increased.
  - The mass of the weight decreased.
  - Energy was transferred from the wire to the tuning fork
  - Energy was transferred from the tuning fork to the wire.



- Electromagnetic Waves also commonly referred to as light waves fall under the classification of a transverse wave. Which of the following correctly list the order from fastest to slowest (increasing Speed) regarding the ability of a transverse wave to travel through a medium.
  - Solid, Liquid, Gas
  - Gas, Liquid, Solid
  - Solid, Liquid, Gas, Vacuum
  - Vacuum, Gas, Liquid, Solid

- Mechanical Waves also commonly referred to as Sound Waves, fall under the classification of longitudinal waves that vibrate matter as they travel. Which of the following correctly list the order from slowest to fastest (decreasing speed) regarding the ability of a longitudinal waves to travel through a medium?
  - Solid, Liquid, Gas
  - Gas, Liquid, Solid
  - Solid, Liquid, Gas, Vacuum
  - Vacuum, Gas, Liquid, Solid

- The diagram to the right (→) details an electromagnetic wave. In what direction does the energy travel?
  - Along the x-axis
  - Along the y-axis
  - Along the z-axis
  - Along the x, y, and z axes



- The relationship amongst frequency, wavelength, and Energy of all waves are the same. Which of the following BEST describes the relationships among these wave characteristics?
  - The energy of electromagnetic waves is directly proportional to Hz, and inversely proportional to the  $\lambda$
  - The energy of all waves is inversely proportional to Hz, and directly proportional to the  $\lambda$
  - The energy of all waves is directly proportional to both the frequency and the wavelength.
  - The energy of all waves is inversely proportional to both the frequency and the wavelength.

- List all electromagnetic wave categories in order of decreasing wavelength and increasing energy.
- Why/How does turning up the radio volume in my truck make the windows rattle? Like, how do sound waves work on the itty bitty tiny microscopic level?
- What is meant by the phrase "20 light years away"?