

Friday, December 12, 2009

BEFORE Lecture:

1. Unpack: notebook, writing utensil, calculator
2. Turn in (on the purple table) your permission slip and t-shirt order.
3. Answer the question in the folded colored paper on your desk. (Alone in your head or discuss with your partner.)
4. CHECK the answer.
5. Trade the colored paper with the neighboring group.
6. Answer the new question.
7. CHECK the answer.
8. When you are finished with both questions or when the timer goes off (which ever happens first), be seated and open your notebook to last night's homework.

Open your notebook to the handout from
yesterday called "Connected/Not Connected."

1. Waves are connected to energy because they are the means by which disturbances are transported.
2. Wavelength is NOT connected to frequency because one is the distance of one complete wave and the other is the number of wave cycles in a given time.
3. Amplitude is connected to wave height because it is the maximum difference of the disturbance.
4. A vacuum is NOT connected to a medium because the complete absence of matter will not allow longitudinal waves to travel through its space.
5. Explosions and earthquakes are connected because, like sound, they are propagated by longitudinal waves.
6. The atmosphere is NOT connected to earth because solid material is a medium that allows longitudinal waves to travel much faster than the air.
7. Electromagnetic waves are connected to light because these waves transport electricity and magnetism, which allows us to see.
8. Longitudinal waves are NOT connected to transverse waves because one type of wave needs a medium to transport the energy and the other type of wave does not.
9. Echoes are connected to reflected waves because they are waves that bounce off a barrier.
10. The Doppler effect is NOT connected to constant pitch because the sound changes as it moves towards the observer and then retreats away from the observer.

Wave properties - speed

wave speed = wavelength X frequency

In a stormy sea, 2 waves pass a buoy every second, and the waves are 10 m apart. What is the speed of the waves.

$$10 \text{ m} \times 2 \text{ Hz} =$$

(w/sec)

$$20 \text{ m/sec}$$

Wave properties - speed

wave speed = wavelength X frequency

$$0.1 \text{ cm} \times 10 \text{ Hz} =$$

(w/sec)

$$1 \text{ cm/sec}$$

In a ripple tank, the wavelength is 0.1 cm, and ten waves occur each second. What is the speed of the waves?

Wave properties - speed

wave speed = wavelength X frequency

A wave has a speed of 3 m/sec and a frequency of 6 Hz. What is its wavelength?

$$3 \text{ m/sec} = \lambda \times 6 \text{ Hz}$$
$$\frac{3}{6} = \lambda$$
$$= 0.5 \text{ m wavelength}$$

Pack and head to computer lab 104.