Answer on Question #46989-Physics-Optics

Which of the following is NOT correct?

light is a longitudinal wave

light is a transverse wave

light is an electromagnetic wave

light can exhibit the phenomenon of polarization

Answer

Light is a longitudinal wave.

In a longitudinal wave, the motion of the wave is parallel to the direction the wave is travelling in, e.g. a sound wave.

If the wave is travelling forwards, then the changes in pressure are also in a forwards-backwards direction and not, for example, in the up-down direction.

In a transverse wave, the change in energy is perpendicular to the direction of propagation of the wave. E.g. waves on a string - the movement of the string that makes up the wave is always perpendicular to the direction the wave is travelling. So if the string is moving up and down, the waves is actually travelling forwards (or backwards).

So in *light waves*, the waveform changes perpendicular to the relative motion - the electric field and magnetic field are changing perpendicular to the direction of travel of the wave.