Warm Up

1. What is the final velocity of a car that accelerated at 7.00 m/s^2 from an initial velocity 32.0 m/s for a time of 13.0 sec?
2. What distance is covered by a 750. W machine that applies 84.0 N of force over a time of 38.0 sec?
3. What is the radius of a cylinder if 506. N of force are being applied to an 87.0 kg person as the cylinder spins at a velocity of 7.00 m/s?
4. What is the distance that a car covers if it accelerates at 2.70 m/s^2 as it goes from 31.0 m/s to 87.0 m/s?
5. What is the spring constant of a spring that required 856 N of force to stretch it a distance of 93.0 cm?

Targets

- I can identify the different types of waves.

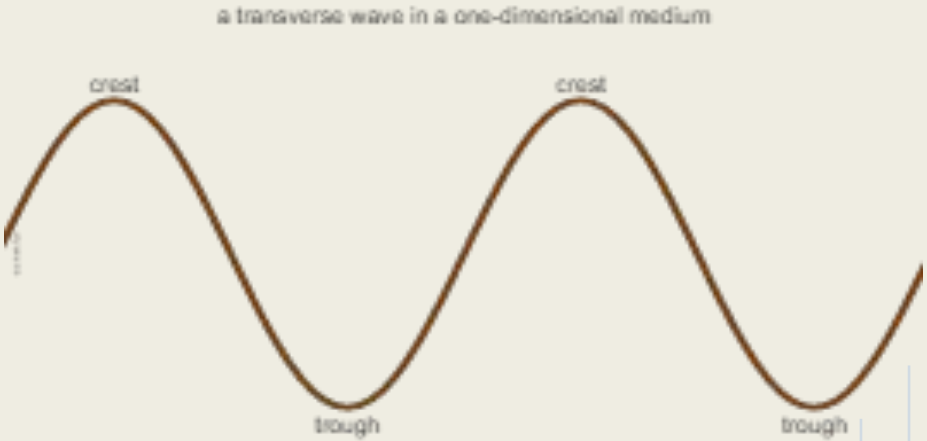
Wave Properties

- A wave is a disturbance that carries energy through matter or space.
- Mechanical waves are waves that transfer wave energy through a medium.
- The material that a wave moves through is the medium.

Types of Waves

- Transverse waves vibrate the medium at right angles to the energy of the wave.

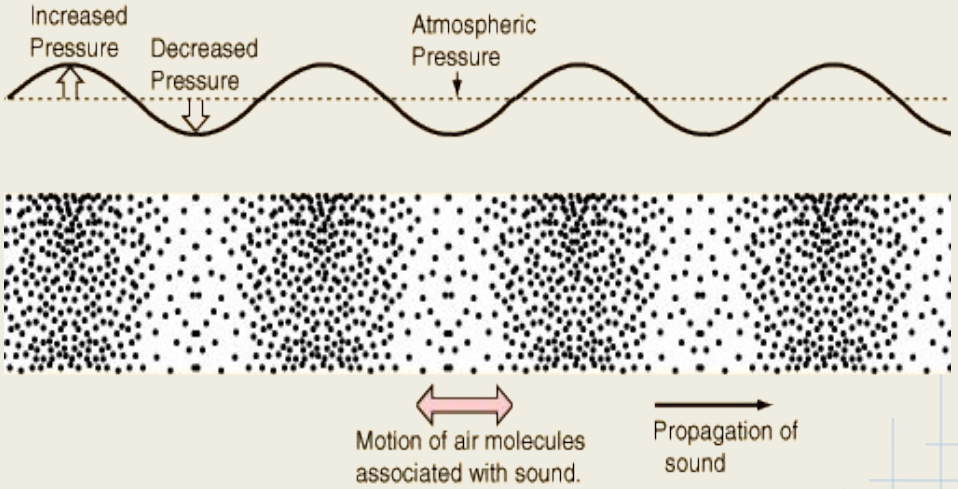
- Transverse Waves have two parts of the wave.
- The crest is the top of the wave.
- The trough is the bottom of the wave.



https://physics.info/waves/

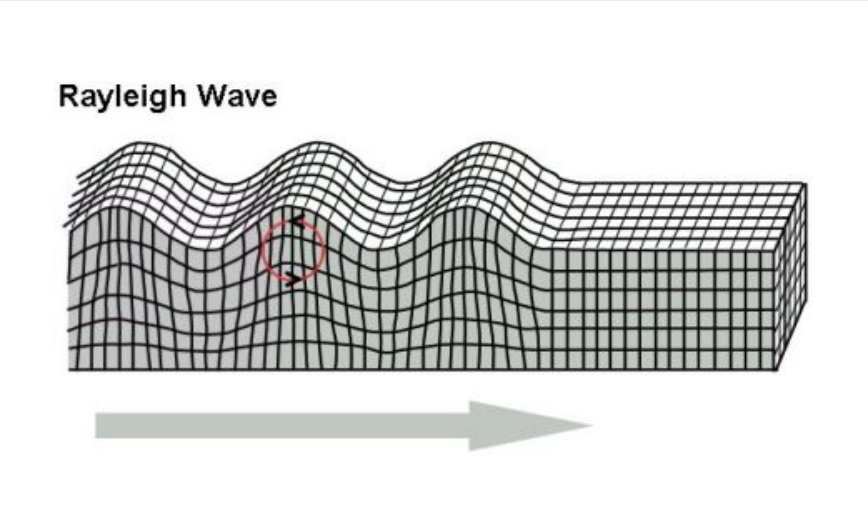
- Longitudinal Waves vibrate the medium in the same direction as the wave energy.

- Longitudinal Waves have two parts.
- The compression is where the medium is pressed together.
- The rarefaction is where the medium is stretched apart.



Hyperphysics.phy-ast.gsu.edu

- Surface waves vibrate the medium in a circular path to the wave energy.



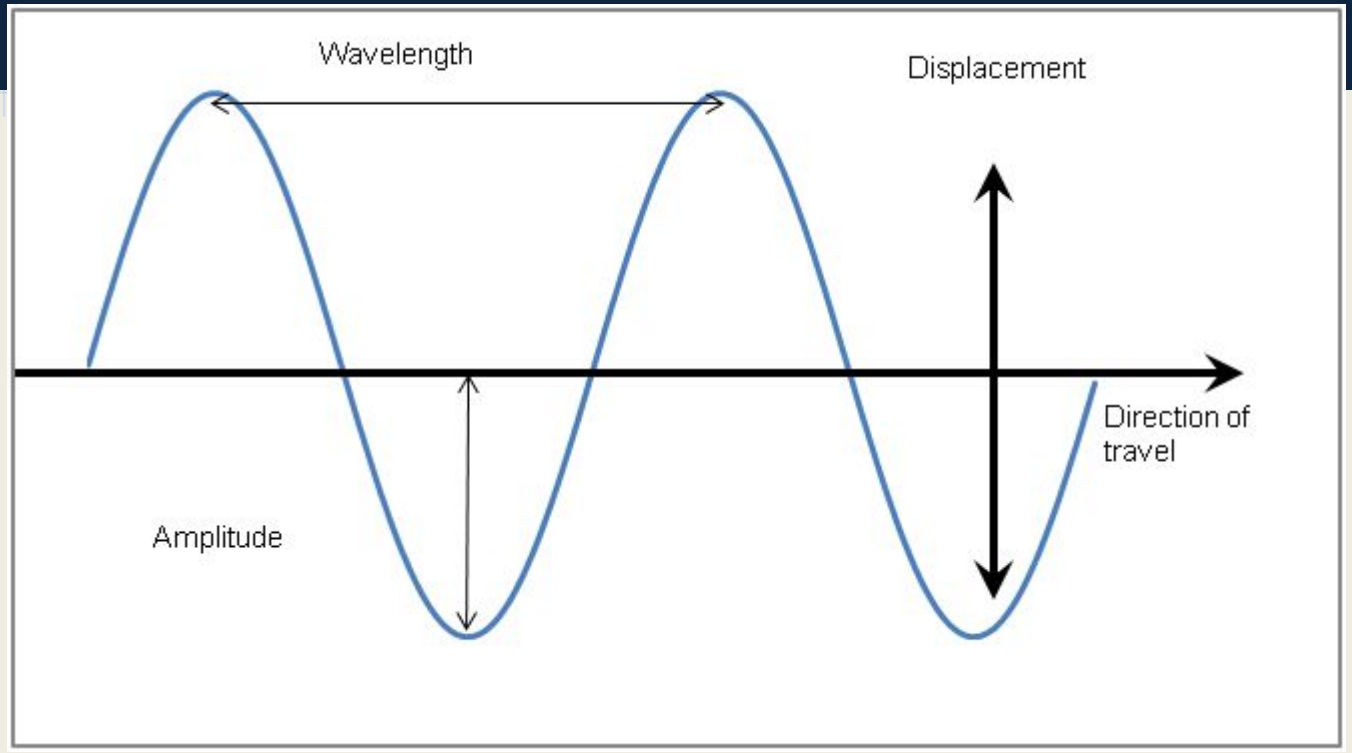
http://igppweb.ucsd.edu/~fialko/tectonics/earthquakes/surface.html

Measuring a Wave

- Frequency is the number of waves that pass a point each second.
- Frequency can be found by the reciprocal of the period.
- $f = 1/T$

- Wavelength is the distance from one spot on a wave to the same spot on the next wave. This is measured in meters.

- Wave speed determines how fast a wave moves. Wave speed is equal to the frequency times the wavelength.
- $V_w = f\lambda$
- Amplitude is another part of the wave motion. This is the max displacement from the rest position of the wave.



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Assignment

Wave Speed Calculations Worksheet
Odd-Numbered Problems Only